The magazine for AUSTRALIAN Amateurs

February 2004
Volume 72
No 1 & 2

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# Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

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## On-air NEW YEAR PARTY!

### WIA welcomes first-time HFers in style

**Riding and talking**
Turning my motorbike into a mobile station
[ Steve Trebilco VK3NF ]

ISSN 0002-6859

A Transmission Quality Checker, "TQC"
[ Drew Diamond VK3XU ]

A high performance 1 kHz to 25 MHz signal generator
[ Dale Hughes VK2DSH ]

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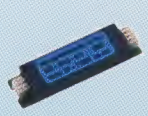

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# Amateur Radio

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## Our Cover this month

**Mal Johnson VK6 LC operating VK6WIA for the welcome to HF QSO party 1 January, 2004. It may not have looked huge, but it was. Read Jim Linton VK3PC's article on page 27, President Ernie Hocking VK1LK's comments, and many other reports of the great event in Division and Club notes.**

**Contributions to Amateur Radio**
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

**Back Issues**
Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

**Photostat copies**
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

**Disclaimer**
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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# Editorial comment

**Colwyn Low VK5UE**

## A new year and a big step forward for amateur radio in Australia

Morse code is no longer an examination requirement to operate on the HF bands from Australia. The great "Welcome Party" has been held and was very successful. I was able to make a few contacts to welcome some of the new users to the HF bands.

Other changes to Amateur Radio will become known as 2004 progresses and the mater of interference will be one of the most important to Amateurs as our interpretation of the ACA proposals was not to our benefit. The ACA did try to assure us that their position was not as draconian as some of us thought. I hope the WIA will be able to clarify both its position and the ACA position and come to a mutually acceptable position, with poorly designed commercial equipment not being used to limit amateurs operating their correctly operating stations.

There have been some problems with my advertising dates on events and contests in AR. I hope that the Calendar of Amateur events published in the December January issue will be used to ensure dates are correctly published. For example the dates for the end of the Ross Hull VHF contest were initially published as 11th January, while it luckily could be corrected to the 18th. However we did the get the weekend of the Summer VHF/UHF contest completely incorrect in the November issue and the 2004 Calendar. I would like to publish the calendar 2 or 3 times a year for the following 12 months, so would contest managers and event organisers please let me know the dates of their events as soon as they are confirmed. I am happy to initially publish in the most probable month without a specific date just to help people do some preliminary planning.

Amateur Radio is supposed to be an experimental activity with self-learning. I try to do something new every now and then. WICEN has a requirement when supporting Car Rallies in the Adelaide area to use vertical omnidirectional aerials at reasonable heights. A collinear with 4 or more elements at 6 or so metres above the ground does quite well. I had been given a design for a 2 metre/70 cm collinear using RG58 and insulated wire with an air wound choke (QST, September 2003 p 28). I built this and was quite surprised to find it worked as claimed with a 1:1 SWR on both bands. I am currently building a 70 cm collinear from a design used by the Summerland ARC in one of their aerial project days. (ref www.rason.org by N1HFX) I will let you know how I get on.

AR still needs a DX columnist, I have had an offer to provide the Contest Column and we are negotiating the requirements. I also need some good Cover pictures. I have had some technically good pictures but the subject matter was more for local club members rather than an Australia wide audience. Portrait orientation, about 500kb file and a novel activity or piece of equipment with a person for human interest. See what you can do.

Submission of material. Technical and 1000 word plus general articles go to the Secretary, AR Publications Committee, 3 Tamar Court, Mentone, VIC., 3194. E-mail armag@optusnet.com.au. Electronic text preferred, diagrams in a bitmap format, jpeg etc. Will be redrawn to AR Magazine standards so clarity is more important from the author than neatness (too a degree). OTU letters and all columns to the Editor.

73 for 2004,

**Colwyn VK5UE**

**The much admired photo of the young gentleman on the December/January cover was taken by Robert Broomhead VK3KRB. Many apologies for not including the appropriate acknowledgement at the time.**

**Ernest Hocking VK1LK**
WIA Federal President
PO Box 691 Dickson ACT 260
president@wia.org.au

# What a News Years Day party!

**What a day it was! After attending an early evening party I made it back to the shack for midnight 1 January 2004. Tuning across the bands the first thing that struck me was that all frequencies were occupied and were even running nets to welcome on board everyone after the change in the Morse Code requirements allowed all Australian amateurs onto HF. To quote many of you from on air "we had a ball". Thanks to Jim Linton for organising the event for us all and I look forward to hearing all of the new call signs on air again over the coming months.**

## Watershed meeting held in Sydney

On Saturday 13 December 2003 a number of amateurs attended a meeting in Sydney to discuss options for the future of the WIA and specifically to consider the question of how to make the WIA a true National body rather than the Federation of States and Territories that it is today. This meeting was precipitated partly as a result of events taking place in VK2 and partly as a result of the ongoing WIA Strategic review. In one of those unusual holiday and work circumstances all except 2 of the current 7 WIA divisions (VK3 and VK7) was able to be represented at the meeting. I should stress that the meeting was not an official WIA meeting but simply a group of people who all wish to see the ongoing success of WIA as the peak body representing amateur radio here in Australia

In addition we were incredibly fortunate to have Michael Owen present. Many of you will know Michael from his work in IARU. Michael's presence was particularly important to the meeting since he had been involved in the writing of the current WIA constitution. At the start of the day Michael outlined the thinking behind the original WIA constitution. This was something of a revelation since he indicated that even 20 years ago that the intention had been to have a national body but that practical difficulties at that time did not allow such a single national body to be created and we therefore ended up with the current federated arrangement in place today.

A quick straw poll of those present revealed a unanimous view that a single national WIA as the best outcome for all concerned. The reasoning behind this position was different for each of those present although the importance of the consensus view should not be underestimated. We spent a lot of time during the rest of the day discussing many of the practicalities involved in changing the current WIA into a national body. These issues covered items such as number of directors, regional or direct elections, dealing with current assets, locations of offices and a whole lot more. At the end of the discussions everyone was relieved to see that no one had thrown up any reason not to proceed.

So all in all the day was a great success but we now need to ask the question "where to from here?" There are number of actions that we all carried away from the meeting:

1. We would set up working parties to look in detail at issues such as the administration, finance, business operations and transition requirements that need to be put into place to undertake the transformation of the WIA from a federal to a national body.
2. Individuals would return to their Divisions to brief them on the meeting and the consensus position that was arrived at. Each Division was to be asked to discuss the proposal with their members in order to achieve an "in principle" agreement that could be taken to the 2004 WIA AGM to be held in Queensland in April 2004 (I have since the meeting briefed the Divisional Councillors of VK3 and VK7 who were unable to attend the meeting and they are now also addressing this question).
3. A "draft" of a constitution reflecting a National rather than a Federal body would be developed that could serve as the basis for discussion amongst all WIA members.

Some of you may well say "So what – that same debate all over again!" This time I personally believe that success in this endeavour is highly likely. This is due to a number of factors including.

1. Moves to establish a foundation licence that will require extensive work and planning by a national amateur radio body.
2. Continuing increases in the costs of administering separate bodies and National, State, Region and club levels, and
3. Most importantly the high degree of support for this move being voiced at this time.

I'll leave you to make up you own minds but whatever you do please, please make your views known to your local Division representatives. As always I look forward to hearing direct from anyone who wishes to offer their view on these proposals

## The rest of the year

2004 looks like it will be a very interesting year for amateur radio and I look forward to being able to report on the WIA reorganisation, discussions with the ACA on licence reform and a whole host of other matters.

Yours in amateur radio

**73 de Ernest Hocking VK1LK**

# A Transmission Quality Checker, "TQC"

**Drew Diamond, VK3XU,**
45 Gatters Road,
Wonga Park, 3115.

**For the amateur who uses a separate transmitter and receiver, signal monitoring is easy, because the receiver, if not overloaded, provides an indication as to transmitted signal quality and netting accuracy. However, the almost universal operating mode now is to use a transceiver. Inevitably there will be occasions when another operator will allege that there is some fault with your transmissions. They usually go something like this; "you're not netted properly", or "you're splattering right over our frequency", or on CW; "ur key clix 10 kHz wide OM", or (increasingly), "your signal has hiss and noise" and so on. The conscientious amateur will investigate any such comments or complaints either by obtaining off-air reports (which may be inaccurate), or by self-checking.**

Self-checking is by far the better approach. A spare receiver may serve as monitor, but the problem is that your local signal, even with the receiver's input shorted, may be too strong, which causes various distortions, and may not give a true picture of what the signal is like (usually appears much worse than it really is). A more ideal quality checker would be a relatively insensitive battery-operated receiver that uses a very stable source of local oscillator signal, such as a quartz crystal.

The prototype TQC is (hopefully) an improved model based upon a bright idea offered by Vic Kitney, VK7VK (Ref. 1), and may be used to check

- netting accuracy
- SSB quality
- AM quality
- CW keying characteristics, and
- quartz crystals for go/no-go.

## Circuit

The scheme is very similar to that employed by our old friend the heterodyne frequency meter (Refs 2 and 3). Essentially we have a simple untuned direct-conversion receiver with a crystal-controlled local oscillator (Fig 1). Oscillator signal and external signal are combined in a single 1N914 diode mixer. Detected product (audio) is filtered with an RC filter and applied to a popular LM-386 audio amplifier chip, where the signal is raised to speaker or headphone level. Sensitivity is such that a 10 µV applied signal may be heard, so the TQC will work with QRP and high power transmitters.

A cheap 3.579545 (3.58) MHz crystal (for example) will permit transmitter outputs to be checked at approximately 3.58. 7.16, 14.32 and 28.64 MHz, and conversely, the TQC's signal is available as fundamental and diode-generated harmonics at the Sig(nal) connector for injecting (by radiation) into the receiver section of a transceiver.

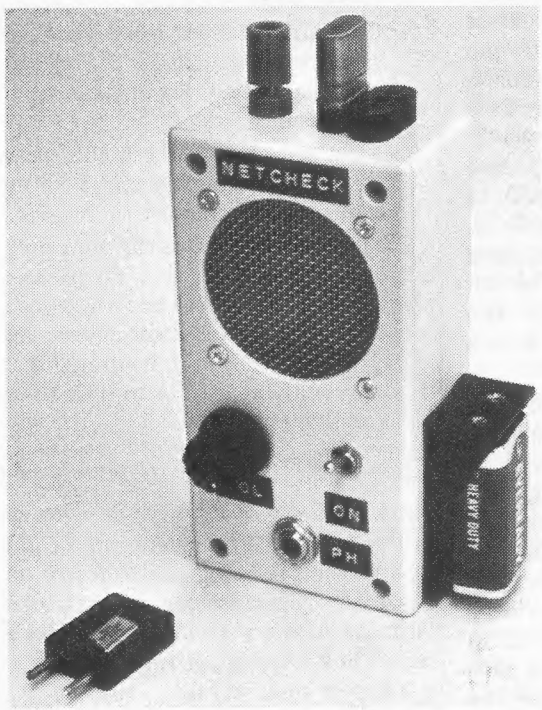


Photo 1 Completed TQC . Modified crystal holder in foreground

A 78L05 regulator chip supplies positive 5 V for the oscillator in order to prevent frequency "pulling" should the battery voltage vary.

AM may be monitored by coupling a small amount of transmitted signal into the TQC, a short length of wire or wire rod connected to the 'signal' connector will supply sufficient energy for the diode to act as a simple "crystal" detector.

## Construction

The TQC pictured in Photo 1 is housed in a readily available plastic 'jiffy' box measuring 130 x 68 x 44 mm. The oscillator and amplifier components are mounted upon a 55 x 100 mm rectangle of plain (double or single-sided) circuit board. Layout is not at all critical, and just about any preferred wiring style should do. However, a suggested "paddyboard" layout (Ref. 4) is shown in Photo 2. Note that the wiring to the 50 k Vol(ume) pot is made with shielded wire. Ordinary hook-up wire may be used for the speaker and battery connections. An external holder is recommended for the 9 V 'transistor' battery.

A 6-land 'substrate' accommodates the oscillator components, these being soldered onto the board with reasonably short lead lengths, as shown in Photo 2.

The 386 chip is fitted into an 8-pin DIL socket, which is soldered upon a substrate, tracks upwards, made from a 25 mm x 6-strip Vero off-cut (visible in Photo 2). The 'lands' of the substrate must be divided down the middle with a single junior hacksaw cut. The pins of the socket poke through the Vero, so a

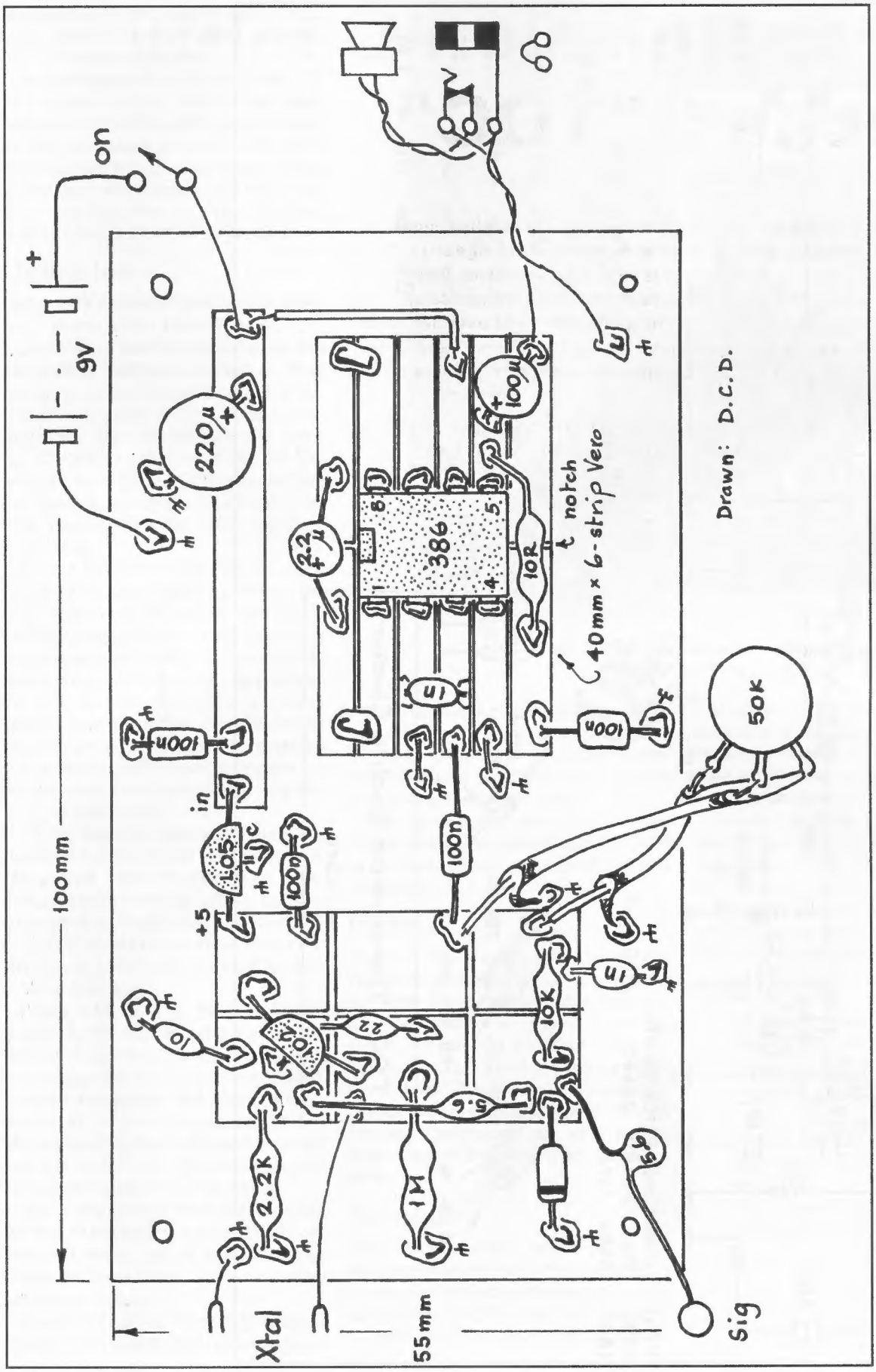
on
9V
+
220µ
100µ
2.2µ
386
10R
notch
40mm × 6-strip Vero
Drawn: D.C.D.
100n
1n
50K
in
L05
+5
100mm
10K
10
22
5.6
2.2K
1M
Xtal
55mm
Sig

Figure 1

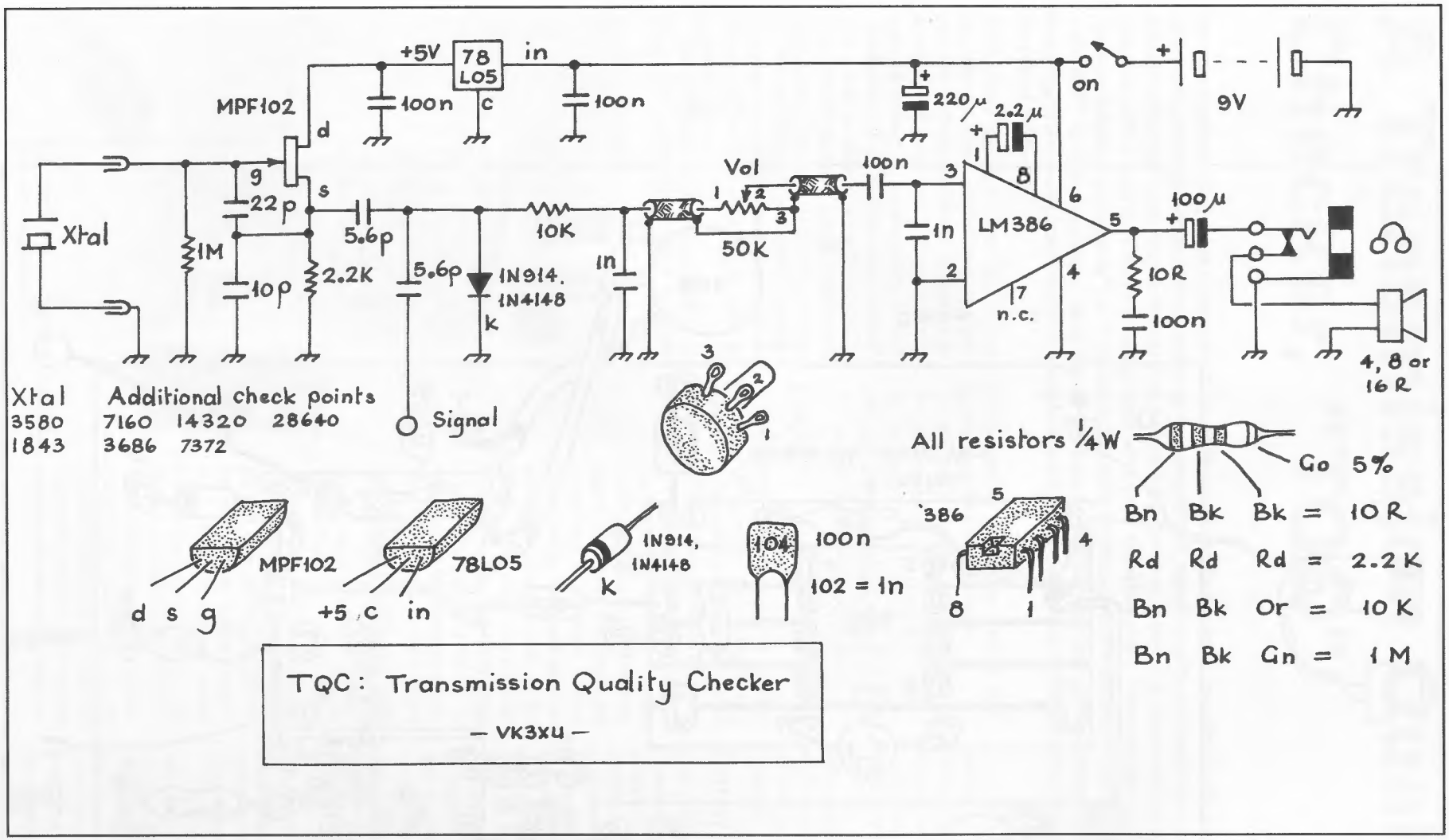
+5V
78 L05
in
100n
c
100n
MPF102
d
g
s
22p
Xtal
1M
10p
2.2K
5.6p
5.6p
IN914, IN4148
k
10K
in
Vol
50K
100n
in
LM386
220µ
2.2µ
on
9V
100µ
10R
100n
n.c.
4, 8 or 16R
Xtal
3580
1843
Additional check points
7160 14320 28640
3686 7372
Signal
All resistors 1/4W
Go 5%
Bn Bk Bk = 10R
Rd Rd Rd = 2.2K
Bn Bk Or = 10K
Bn Bk Gn = 1M
MPF102
d s g
78L05
+5 c in
IN914, IN4148
k
104
100n
102 = 1n
'386
TQC: Transmission Quality Checker
— VK3XU —

Figure 2

similarly sized rectangle of plain circuit board should be super-glued between, foil side down of course.

In the foreground of Photo 1 is an FT-243 crystal holder, which has been hollowed out (with a sharp wood-chisel) to accommodate a small 3.58 MHz crystal, for which a corresponding socket has been placed in the top of the jiffy box. Sockets for other desired crystal types may wired in parallel.

## Operation

Verify parts placement and their polarity, pay particular attention to the orientation of the '386 chip. Set the Vol pot at about half travel. Switch on. Plug an appropriate crystal into the TQC, which will cause a click to be heard, indicating that the oscillator has fired-up. Clockwise rotation of the Vol pot may cause a slight increase in noise from the 'speaker, which should be just a soft hiss, showing that the audio amplifier is working.

For the following tests, attach a small length of insulated hook-up wire to the 'Sig' connector, by which the TQC's oscillator signal is radiated into your receiver, and conversely, the transmitted signal is applied to the TQC. In practice, the wire may be wrapped a few times around the transceiver's coax. It should then be possible to hear the crystal's fundamental and harmonic signals on the receiver. Use headphones with the TQC for best results.

Check netting accuracy: Tune the receiver for zero-beat on the crystal frequency (or harmonic). Set transceiver's RIT to '0' offset. Key the transmitter on. Demodulated voice (SSB) from TQC must be correctly resolved. On CW, the demodulated tone shall be very close to zero-beat.

Check SSB quality: Tune-in TQC's signal. Apply transmitter's output to a dummy load. Key the transmitter on. Demodulated SSB should sound natural, without perceptible distortion, hum or noise. Vary the transmit frequency whilst speaking (hence the dummy load) and check for any splatter or excess "whiskers" each side of the signal.

Check AM quality: No crystal required for the TQC. Key the transmitter on. Detected voice should sound natural without distortion, hum or other extraneous noises.

Check CW keying: Tune TQC's signal for about 1 kHz note. Apply transmitter's output to dummy load. Send string of dots whilst varying transmit frequency beyond audibility. Detected signal should sound clean, without excess ripple, noise, clicks or chirp.

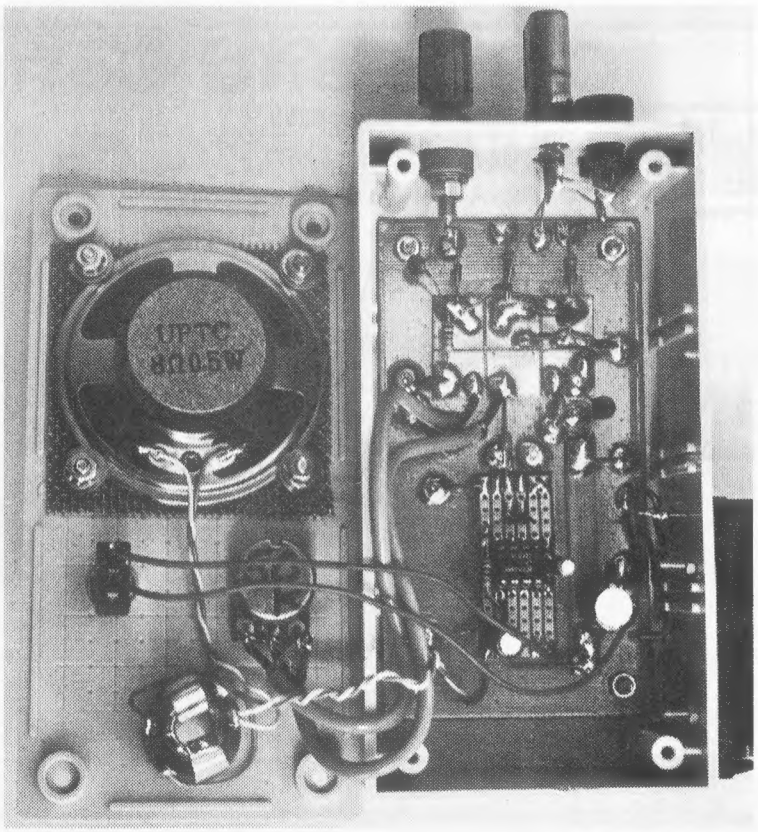


Photo 2. Internal view showing layout of components

Test crystals from about 2 to 25 MHz for go/no-go: Plug crystal into TQC and tune receiver to expected crystal frequency.

## Parts

Most of the components required (including crystals on 1.843 and 3.579545 MHz) are available from our usual electronics suppliers: Altronics, D.S.E, Jaycar and Electronic World. Crystal sockets seem no longer to be stocked; ask your mates at the radio club, or look out for suitable items at the next hamfest. The speaker may be an 8 or 16 ohm salvaged from a defunct transistor radio.

## Summary

With the almost universality of transceiver operation, it may be difficult to ensure that transmitted signals are of acceptable quality, and are properly 'netted' onto the operating frequency. Therefore, the sensible amateur should maintain a reliable, local method of checking transmission characteristics, without having to rely on (perhaps) inaccurate reports.

Details are given for a transmission quality checker (TQC); a simple device based on a crystal-controlled version of the conventional heterodyne frequency meter principle, which may be used to test netting accuracy, and SSB, AM and CW transmission quality.

## References

1. "A Netter Monitor"; Try This, V. Kitney, VK7VK, AR Nov. '95.
2. "Notes on the BC-221"; H. Gordon, W1KWB, CQ Aug '62 and AR Dec. '62.
3. Radio Servicing, Unit 1; Test Equipment. R.M.I.T., 1958 pp 32 - 40.
4. "Paddyboard Circuit Construction"; Diamond, AR Feb. '95.

# Cable and Connectors

Belden

- RG58C/U Belden 8259 @ $0.90 per metre
- RG213/U Belden 8267 @ $4.45 per metre
- RG8/U Belden 9913 Low Loss @ $5.15 per metre
- RG8/U Belden 9913F7 High Flex Low Loss @ $5.55 per metre
- RG8/U - RF400 Belden 7810 Low Loss Sweep Tested to 6000MHz @ $6.30 per metre

LINK

- RG58: B80-006 UHF connector (M) @ $7.65 each
- RG8/213: B80-001 UHF connector (M) @ $8.80 each
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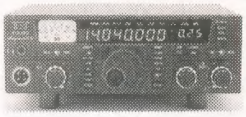

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# Riding and talking

## Turning my motorbike into a mobile station

Steve Trebilco VK3NF

### Steve VK3NF with Dave VK3GDL, Craig, John VK5NJ and Brian

**Early in 2003 I was asked to go to Darwin, but my time was limited. Alice Springs was about as far as I could go on my motorbike. We started talking on air. VK5NJ John at Mt Gambier said he would like to go as well.**

That's when I decided that I would like comms back to home. I began the process of seeing if it was possible to turn my motorbike into a mobile station.

I looked around in the motorbike shops for a pack rack and found that none were strong enough to hold a base and the Terlin Outrunner antenna. So necessity being the mother of invention I made one out of 12mm box section steel which I had purchased a while ago for another project. After a few prototypes that didn't work, I finally found the one that would withstand the stresses of the antenna and also approximately 108 kilogram of radio gear. The gear consisted of MFJ 941E antenna coupler, an Alinco DR 570, 17 amp hour gel cell battery, 80 m dipole with 300 Ω open wire feeder and of course the trusty soldering iron, accessories for minor repairs and the mandatory clothing, tent, sleeping bag and pillow. Well, that was that out of the way. Now, where to put the Alinco DX70?

It needed to be in a position where it was visible and reachable. To solve the problem I made a tank bag out of one of the kids' backpacks with some redesign work. The straps were repositioned and Velcro was used to fasten the bag to the struts underneath the tank. This made it easy to take on and off as necessary.

The coax ran underneath the tank, but well away from the electrical system of the bike. I found it to be adequate with about S2 ignition noise. I also ran the DC lead the same route. The main concern was whether the battery could handle the current drain. John, Dave and I conducted tests in the back yard on 80, 40 and 30 metre for about half an hour with no noticeable deterioration.

The bike with all the gear packed

Next was to work out some way of talking while riding. Into the junk box I went. Putting earphones and a mic into the helmet proved to be economic. The junk box had a set of old army tank headphones, which I modified to fit inside the inner of the helmet padding. I found an old rocking armature telephone insert, which I sewed into the front of the helmet with foam covering the insert to try to reduce wind noise. I tried using

The bracket for the aerials

vox circuitry but the wind noise tripped it too often, so a toggle switch was mounted onto the microphone lead close to the radio.

Now for the road test. I set off Saturday morning two weeks before the big day and started transmitting on 40 metre. David, John and Rita (the better half VK3IF) were listening to establish the signal and audio quality. I travelled for about 20 minutes and then QSYed to 30 metre for the 20 minutes back. John couldn't believe that it was working so well and commented, "you've got the audio but when is the video camera being put on the bike?" "I suppose you want the heart monitor with pulse rate as well", I replied. I heard him laugh. Satisfied with the set up, I left things as they were.

## The Trip

On Mothers Day 12th May (that went down really well), VK3GDL Craig and I set off at 9.00am. First stop was Ballarat where we met up with VK3MKZ Keith who supplied breakfast. We were joined by VK3LSM Lindon, VK3VCW Ken and their partners. We left Ballarat at midday – it was time to make a mile. After a break at Birchip, the first stopover was Redcliff near Mildura. We'd travelled some 550 km. We made contact on 80 m with VK3IF, Peter VK3CPJ. Time to unpack get a meal and go to bed.

The next day we travelled to Port Augusta where we had contacts as we were travelling with VK5ON, VK5KGP, VK5FJ, VK5ZK, VK5NB VK5AVR and VK3SWD on 40 metre. We called in to the travellers net on 20 metre with Peter VK6HH, Roy VK6BO and Maurie VK3ZT. Each evening we spoke on 30 metre on 10.120 with the XYL. Basically this was our procedure for the entire trip. Our meeting place at Port Augusta was with VK5NJ John and Brian.

On Day 3 we rode from Port Augusta to Coober Pedy through the salt plains and had a quick chat with Colin, VK3LO on 10.120. How good is this – great signals both ways? Some 640 km ridden this day, time to find a place to stay. Dave VK3GDL had settled on the underground backpackers accommodation. Contact was made back to Melbourne that night on 80 m but the conditions weren't great, so 40 m was the go with good reports both ways. It was hard to put the microphone down with some 12 contacts made with people that had been informed about the trip.

Day 4 was from Coober Pedy to Alice Springs. Well I thought we had done a few long stints! Alice Springs proved to be the toughest on our bodies. We rode 870 kilometres that day. We ached all over, and were sure glad to be there. During the day we'd made contacts with Bill VK3SWD mobile and Mike VK3XL at home on 20 metre. Later in the day we went to 30 metre and spoke with the XYL, Bruce VK3UV mobile and Bill VK3BR. We had a break and I finished the QSO with Rita. During the next half an hour I listened to Rita and Brent VK2PB talking until I thought it was time to break in.

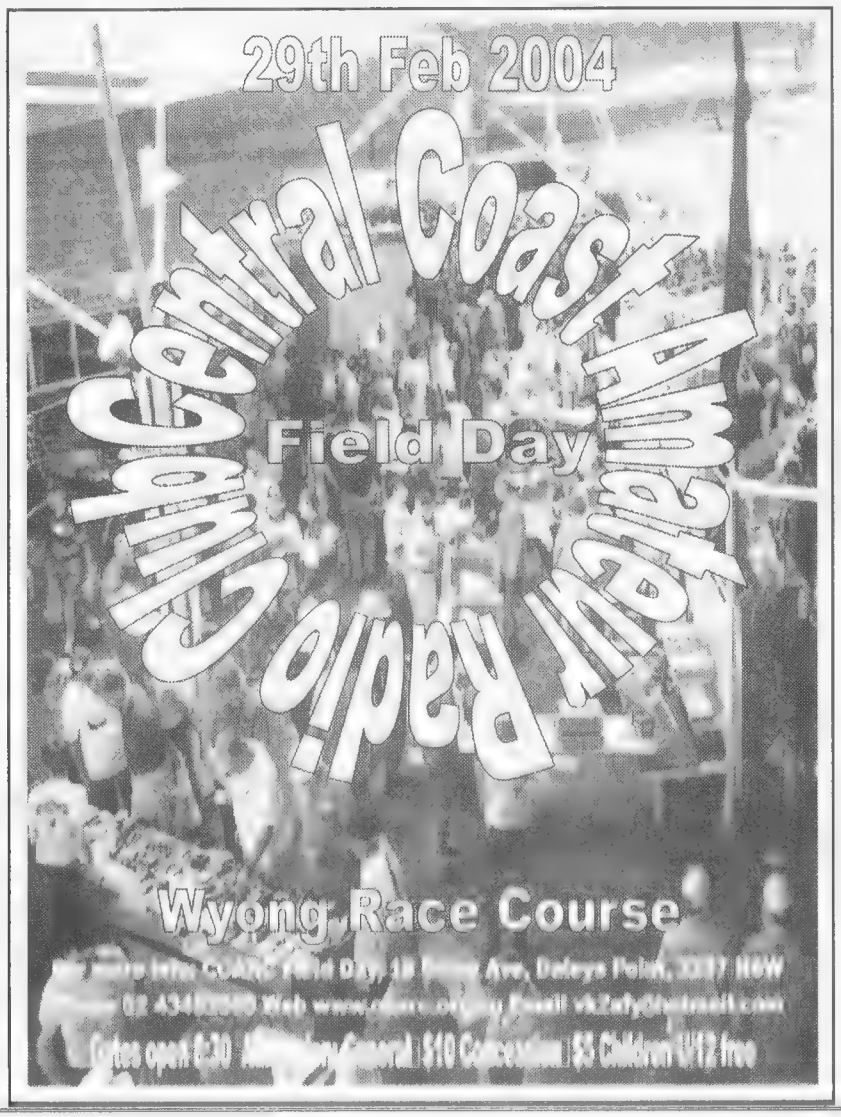
Given that it's open speed limit in the NT I had to try it out – high speed mobile. Brent asked "how fast you going?" "150 kph" I replied. Brent said "Its sounds good! The audio is overriding the wind noise". We had a few days looking at the sights of the Alice and an oil change for the bikes. It was time to say goodbye to Dave and Craig. They were half way to the top of Aussie.

John, Brian and I started the trip home, staying overnight at Curtin Springs. After we set up the tents, out came the dipole, the spare battery and the *mice*. Nothing had been said about that plague! The little rodents were bouncing off the tent roof all night. Not much sleeping was done.

Uluru the next morning and the climb! What a sight in every direction! John was impressed by the telephone service. [For those who travel to Uluru, it's worth the climb].

The rest of the trip was much the same as going up. We are all looking forward to the next trip. TNX to all the contacts.

**ar**



# A high performance, 1 kHz to 25 MHz signal generator

Dale Hughes VK2DSH

**A signal generator is one of the most useful items of test equipment that an amateur can own. There are many designs available, ranging from very simple free running oscillators to Phase Locked Loop and Direct Digital Synthesis types (see Ref (1) for example), each offering particular advantages and disadvantages. For accurate work the generator must be stable and re-settable to a particular frequency. An accurate attenuator is especially useful for accurate measurement of gain and bandwidth. The lack of a good attenuator is where many simple designs fall short.**

This article describes the design and construction of a signal generator that uses a Direct Digital Synthesiser (DDS) IC to generate any frequency between 1 kHz and 25 MHz. The completed instrument has many uses: e.g. a stable signal source for receiver or antenna testing, a local oscillator for a receiver, an exciter for a CW or FSK transmitter etc. The project grew out of a desire to build a signal generator that would replace an elderly HP602 unit that was big and heavy. Also I wanted to learn about, and use, some up to date components such as the newer microprocessors and DDS components that are now available at low cost.

This design achieved the above and makes extensive use of surface mounted components and is of modular construction. The signal generator consists of four main parts:

- The DDS module that generates a user programmable frequency referenced to a stable 50 MHz crystal oscillator.
- A precision step attenuator that has a range of 0 to 63 db attenuation.
- A microprocessor that controls the DDS module, the step attenuator, a 16 key keypad and a 2 line by 16-character liquid crystal display.

## The power supply

Each of the above sub-assemblies is described in the following sections. A significant part of the development time was the software which runs the microprocessor, and the end result offers many facilities, allowing the user to set the output frequency of the generator in various ways, set the output attenuator and modulate the carrier - either CW or FSK.

The various modules interconnect as shown in the Figure 1

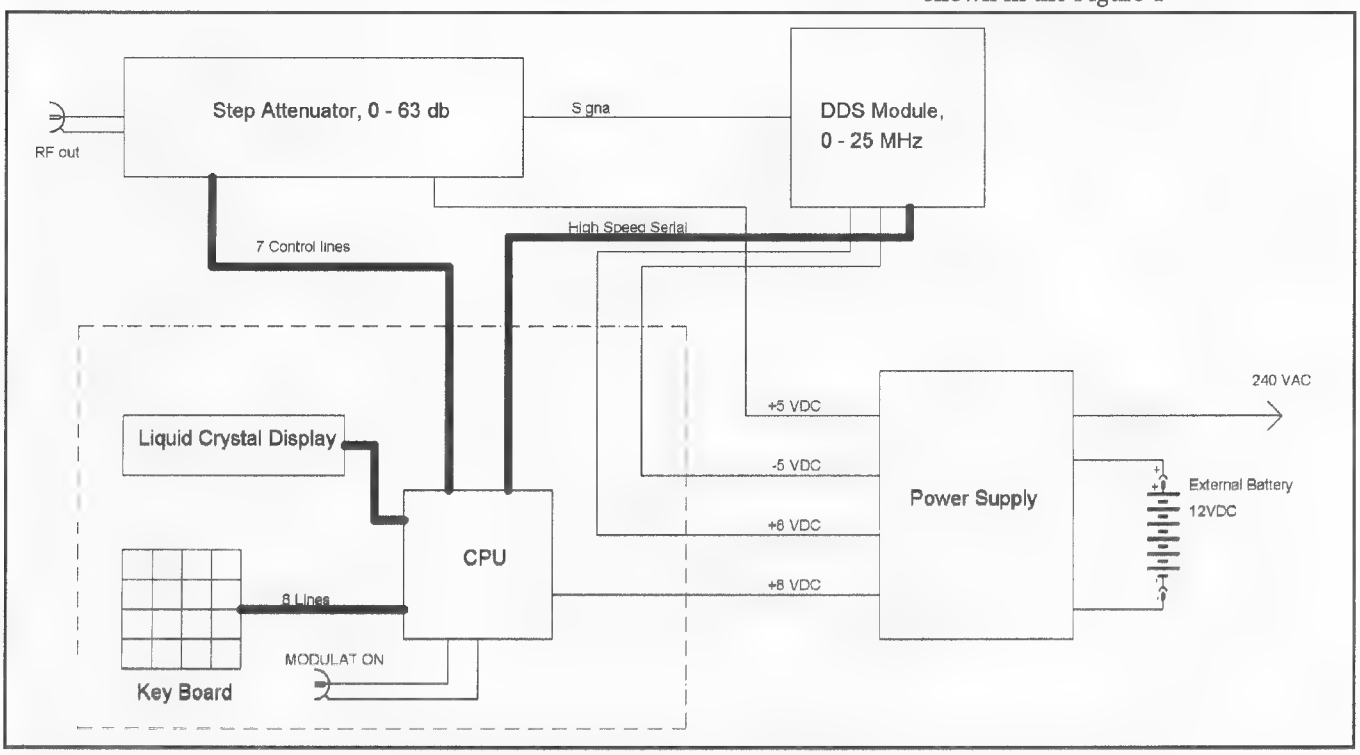



Figure 1: Block diagram of the signal generator.

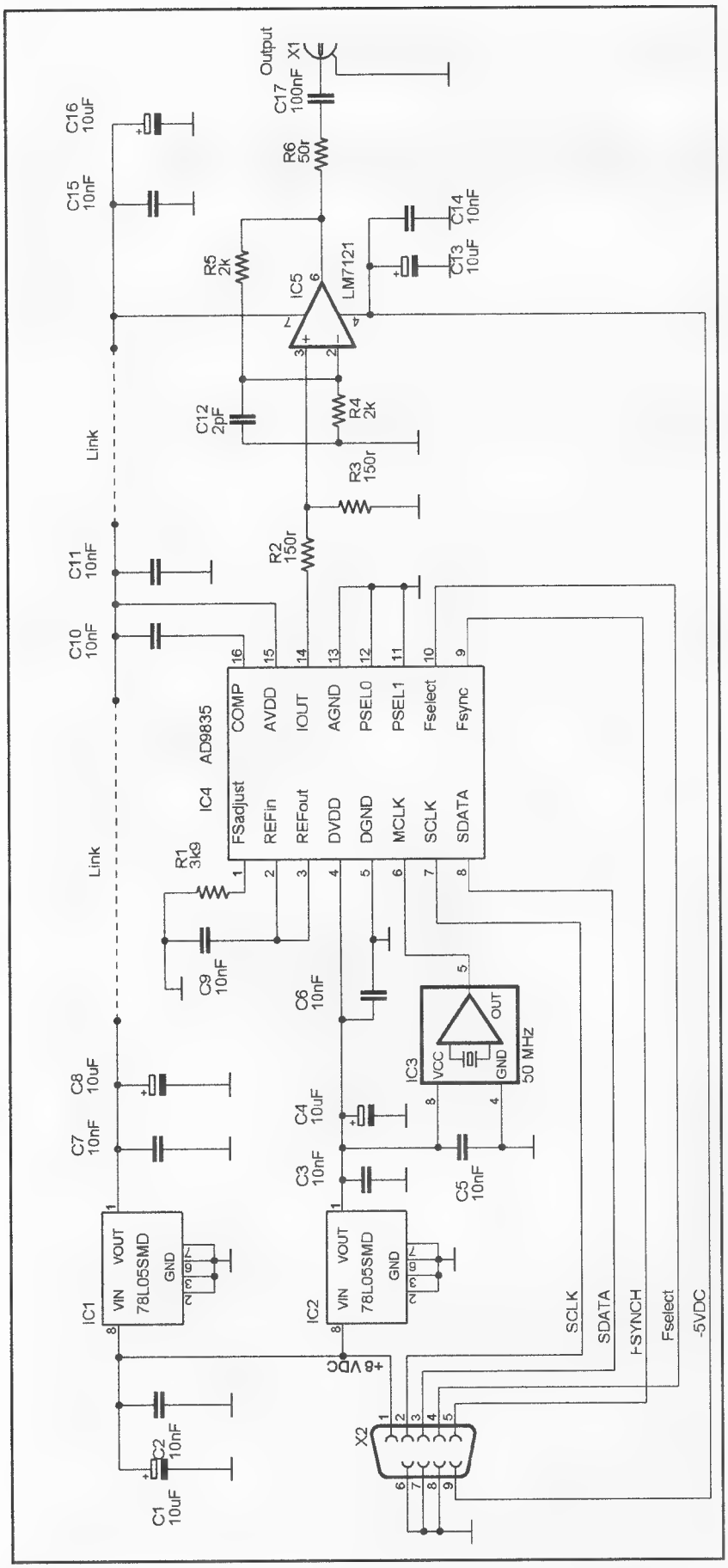



Figure 2: DDS module schematic.

This article does not include much in the way of mechanical details as the actual construction is dependent upon what tools and equipment the individual constructor has access to. However it is important to state that the mechanical aspects of the unit have a large effect on its electrical performance, especially with respect to frequency stability and the nature and extent of spurious emissions from the high-speed digital circuitry. Best performance will be achieved if each section is built in a well-screened, mechanically stable enclosure.

## The DDS module

The generation of the output signal is performed by a 'numerical oscillator', which consists of a stable clock source, a phase accumulator, a cosine lookup table and a digital to analog converter to convert the numerical information to an analog output. In this design a 50 MHz signal from a crystal oscillator is used as a clock source. The user can select an output frequency that is a fraction of the 50 MHz clock and the following equation is used to calculate a value that is used to program the DDS module:

$$C = \frac{F_o X 2^{32}}{F_{clk}}$$

Where

$C$ = 32 bit value used to set the DDS output frequency,

$F_o$ = desired output frequency,

$F_{clk}$= reference clock frequency (50 MHz in this design).

It can be seen from the above equation that we can program the DDS chip to produce one of a large number of discrete frequencies, spaced at approximately 0.01 Hz. For example, if we require a 1 kHz output, the above equation would give us a value of 85899.345. The value we write to the DDS module is 85899 or 14f8b Hexadecimal. The controller software does this calculation for us; however the user can calculate and enter the 32-bit value if desired. A hexadecimal calculator makes this task much easier, a suitable calculator is a HP 6S Scientific Calculator, which is available from Dick Smith Electronics at low cost. Note that there might be a small rounding error in the above calculations, depending on the relationship between the selected output frequency and the clock frequency, in

practice this is a very small value.

Figure 2 is the schematic diagram of the DDS module. An Analog Devices AD9835 DDS chip is used, as this chip is readily available. For a complete data sheet and application examples see Ref (2). A LM7121 operational amplifier amplifies the sine wave output from the DDS chip. The amplifier has a gain of 2 and an output impedance of approximately 50 ohms. Separate voltage regulators supply power to the digital and analog components of the DDS module and extensive de-coupling ensures that little digital noise is coupled into the analog circuitry.

Control of the DDS chip is by means of a high-speed serial interface that controls various registers inside the DDS chip. The AD9835 contains two sets of registers for setting the output frequency, either one of which can be selected by the level on the frequency select pin ($F_{select}$). The $F_{select}$ input is also used for FSK modulation. Another register controls the output of the DDS and can be used to key the DDS output. The same register is used to setup and initialise the DDS chip.

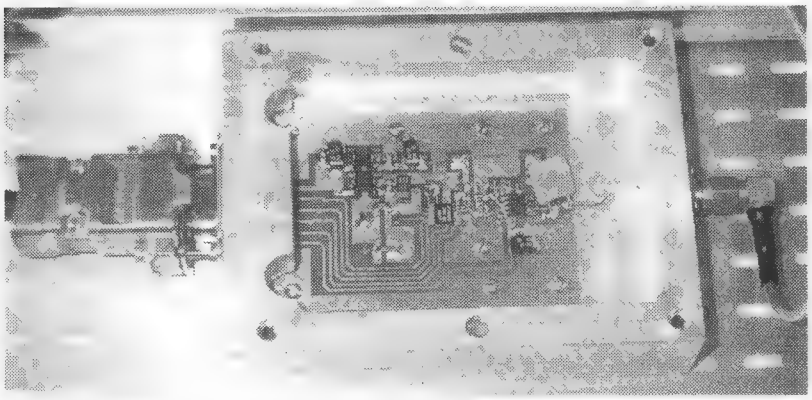


Figure 3: The DDS module with top cover removed.

The DDS module can be used with the Analog Devices evaluation software that can be downloaded from the Analog Devices website. The evaluation software can be used to test the module alone. In this case the DDS module is connected to several lines of a PC printer port, and the evaluation software allows the user to set the output frequency and to program the DDS to act as a basic sweep generator. See Ref (3) for more details.

As can be seen from Figure 3, the DDS module uses surface mount components and the DDS chip itself requires a very fine soldering iron and a steady hand, as the spacing between the pins is only 0.63 mm. The rest of the components present no difficulty in soldering. For good screening and stability, the DDS module was built into a milled aluminium case and all signals, into and out of the unit, are via screened cable.

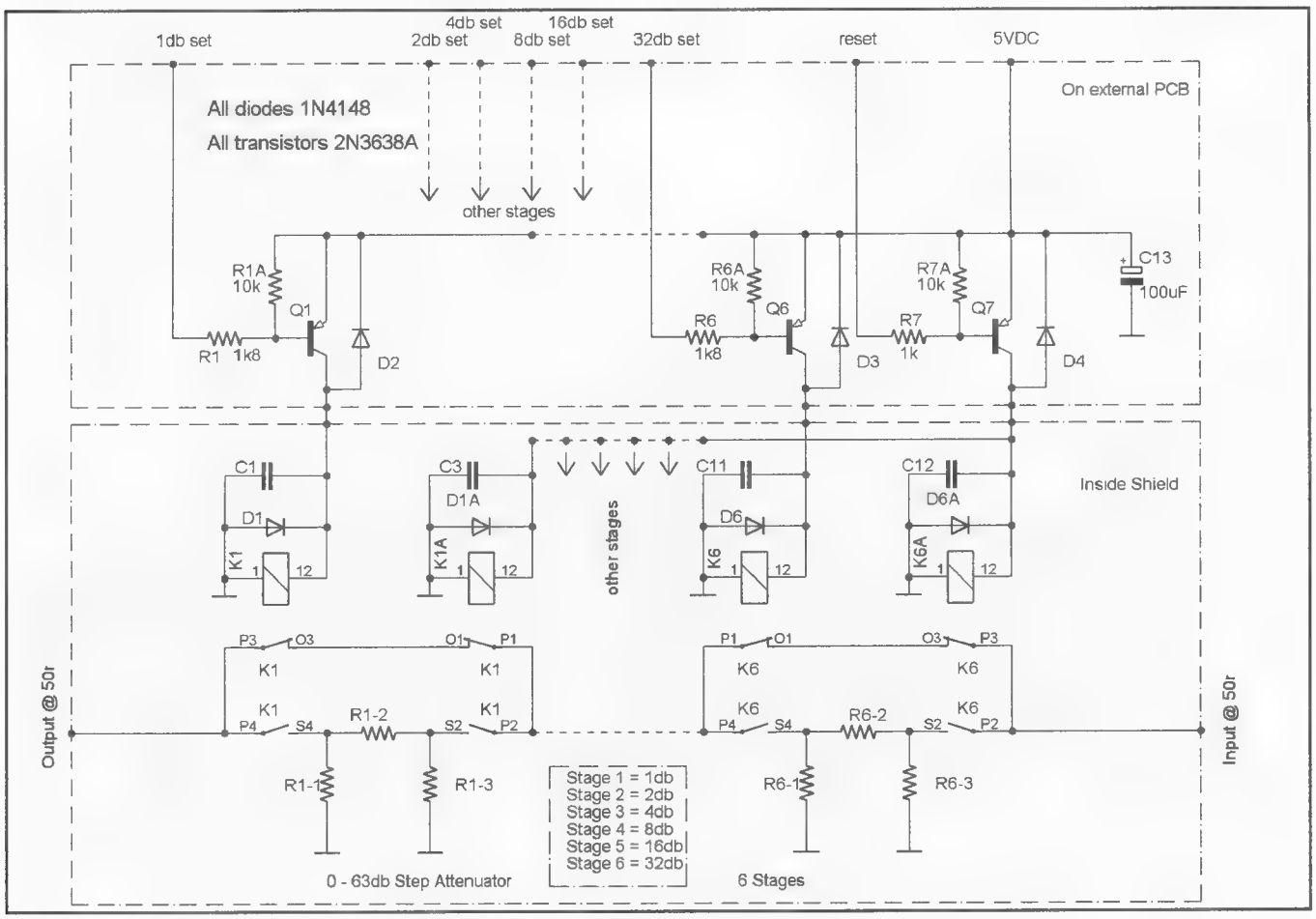



Figure 4: Attenuator schematic diagram.

## The step attenuator module

So that the output level of the DDS module can be controlled, a constant impedance step attenuator has been designed; Figure 4 shows the schematic diagram. The attenuator has a range of settings from 0 to 63 db in 1 db steps and the attenuator is controlled by the user via the microprocessor. A binary sequence (1, 2, 4, 8, 16 & 32 db) of individual PI type attenuators can be switched in or out of series to give the required value of attenuation. The value of the series and shunt resistances to give a specified attenuation (A) in db can be calculated from the following equations: (Ref 4)

$$e = 10^{\frac{-A}{20}}$$

$$r = R_o \frac{1+e}{1-e}$$

| Attenuation (db) | r (R1-1 & R1-3 etc) | | R (R1-2 etc) | |
|---|---|---|---|---|
| 1 | 869.54 | 910//20k | 5.77 | 11//12 |
| 2 | 436.21 | 510//3k | 11.62 | 12//360 |
| 4 | 220.97 | 390//510 | 23.85 | 24//3k6 |
| 8 | 116.14 | 120//3k6 | 52.84 | 62//360 |
| 16 | 68.83 | 82//430 | 153.78 | 220//510 |
| 32 | 52.58 | 56//820 | 994.64 | 1k//180k |

Table 1: Attenuator resistor values.

$$R = \frac{2rR_o^2}{r^2 - R_o^2}$$

Where

$A$ = Attenuation in db

$R_o$ = Impedance (50 ohms in this case)

$R$ = Series resistor (R1-2 through R6-2 on the schematic diagram)

$r$ = Shunt arm resistor (R1-1 & R1-3 through R6-1 & R6-3)

The values for each attenuator step are tabulated in Table 1, along with a parallel combination of standard E24 resistors that gives a close approximation to each value.

Tests of the complete attenuator gave the following results, showing that the measured and calculated attenuation are very close. The measured attenuation of any setting is approximately 0.1 db greater than the calculated setting; the maximum error over the whole range was -0.3 db.

The relays in the prototype attenuator are latching types, this has the advantage that no power is consumed to hold the relays in the required state, and this comes at the expense of added circuit and software complexity. The attenuator elements are made of parallel combinations of Surface Mount resistors (1206 size). Each section of the attenuator is screened from each other by means of shields made from scrap PCB material, and each relay coil is connected via feed-through and de-coupling capacitors to minimise any stray coupling of the DDS signal between stages. PNP transistors (Q1 through Q7) are used as an interface between the logic level outputs of the controller and the associated relay.

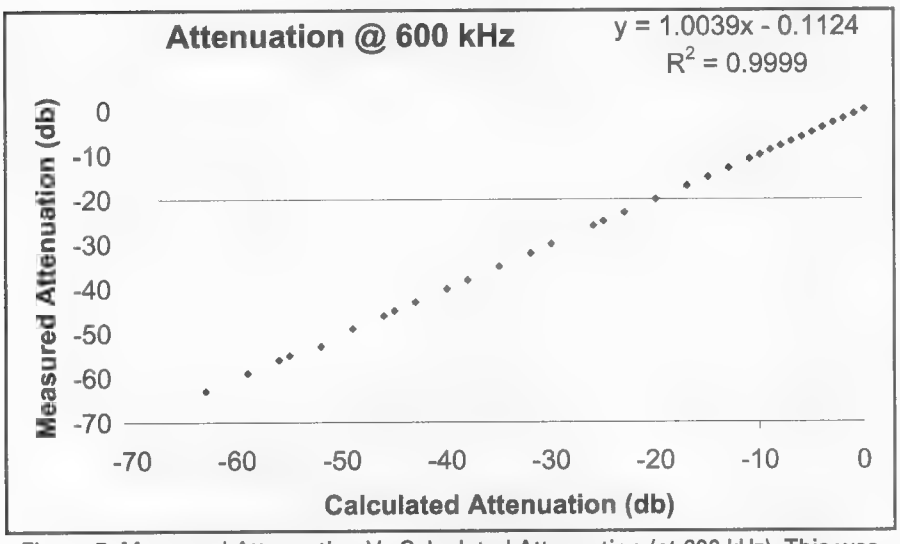



Figure 5: Measured Attenuation Vs Calculated Attenuation (at 600 kHz). This was measured using a Siemens D2055 selective level meter.

## The micro-controller module

The micro-controller module controls the operation of the user interface (i.e. the keypad and the LCD), the DDS module and the step attenuator. I choose the AMTEL AT90S8535 microprocessor as it offers high performance at a low cost. The

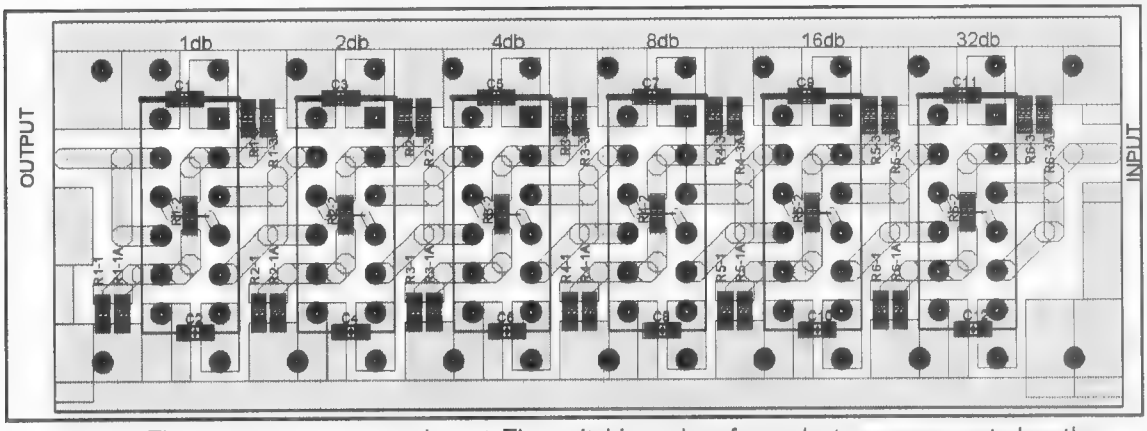



Figure 6: The step attenuator parts layout. The switching relays for each stage are mounted on the underside of the circuit board. Screens are fitted between each attenuator stage on both sides of the board and the complete assembly is housed inside an aluminium box. The control interface is on another PCB mounted on top of the attenuator enclosure.

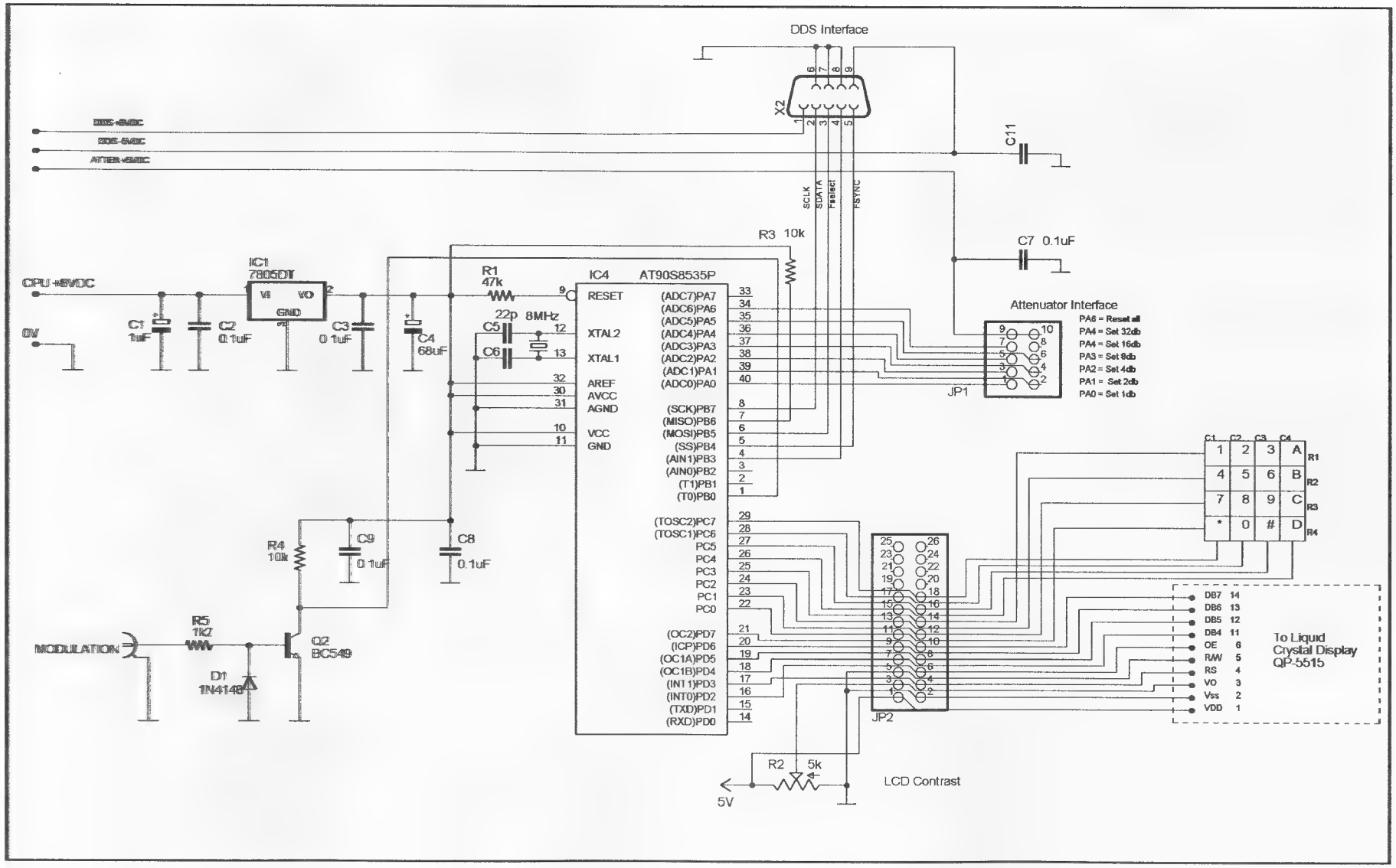



Figure 7: Micro-controller schematic diagram.

device runs at 8 MHz and it has a rich set of instructions that make it very suitable for applications such as this which make extensive use of the available input-output lines. The microprocessor interfaces to the 4 by 4 keyboard, the Liquid Crystal Display, the DDS module and the step attenuator. Figure 7 shows the circuit of the microcontroller and the interface between the various parts of the signal generator. It can be seen that 26 Input/Output lines are required to service the various parts of the system, and these lines are as follows:

The keyboard uses 8 lines, arranged as 4 row and 4 column lines, this allows the use of a low cost and readily available keyboard. The LCD uses 6 lines as it is configured in the 4-bit interface mode, that is, 4 data lines and 2 control lines. As each character is 8 bits wide, 2 write operations are required for each character to be displayed. The DDS requires 4 lines to be used; they are the high-speed serial interface lines, the DDS reset and frequency select lines. The modulation input requires 1 input line. Seven output lines control the Attenuator, 6 lines set the relays to the required state and 1 line is used to reset the relays when the attenuation value is changed.

The external modulation input can be used to amplitude modulate, or frequency shift the output signal. When CW is selected a high level on the input turns the carrier on, a low level turns the carrier off. When FSK is selected, high selects frequency 1, a low selects frequency 0. As the AM mode uses the 'sleep' facility of the DDS, the maximum keying rate is limited to less than 500 Hz (approximately), however for ordinary CW or on/off keying that rate will be more than adequate. Frequency Shift Keying is not limited in this way and high speed frequency shifting is possible.

Software controls most parts of the signal generator. The software for this design was written in assembler and the code is approximately 1 k words when assembled. The assembler I used is part of the AMTEL 'AVR Studio 4' development system and it is freely available from the AMTEL website (http://www.atmel.com/). A simple menu system allows the user to set the output frequency, set the attenuator and control modulation. All of this is done via the keypad and LCD. The microcontroller module was built on a small piece of prototype board (DSE H 5613) and is housed in its own screened section, all signals into and out of the unit are via feed-through capacitors.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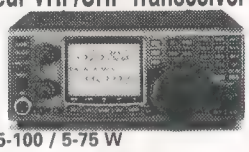
Dimensions (W*H*D): 241*94*239 mm



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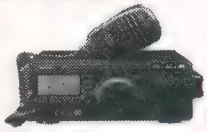

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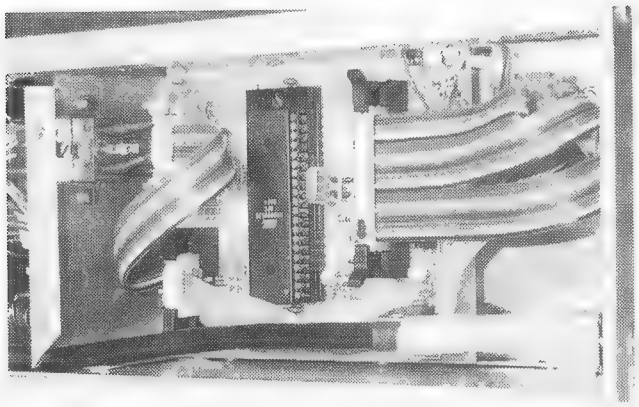


Figure 8: The micro-controller module.

## Signal generator functions

Table 2 lists the functions that exist in the current version of the DDS software. Each function is accessible from the local keyboard and the selections make setting the frequency and attenuation very easy. Preferred, or frequently used, settings can be saved in EEPROM for later use.

## Power supply

The power supply is conventional and generates the required voltages to operate the various modules of the unit. Two 8-volt outputs are used to provide power to the DDS module and the Micro-controller module. The power supply also provides 5 VDC for the step attenuator and -5 VDC for the DDS output amplifier. The DC-DC converter that generates the negative 5 VDC is overkill and was used because I had one, lower power devices would work just as well. Provision is made to power the unit from an external supply, such as a battery. The unit consumes approximately 125 mA, depending on the function selected.

0 = Set Frequency Register 0 (f0:1 - 25000 kHz)
1 = Set Frequency Register 1 (f1:1 - 25000 kHz)
2 = Set Attenuator value (0 - 63 db)
3 = Select output frequency register (f0 or f1)
4 = Toggle output generator on and off
5 = Save contents of frequency registers and attenuator in EEPROM
6 = Set frequency registers and attenuator to values held in EEPROM
7 = Direct entry of HEX values into f0 or f1
8 = Enable external CW or FSK modulation (sub menu)
9 = Enable internal CW or FSK at fixed rate (sub menu)
* = CLR entry or Show function selections
# = ENTER key
A = Advance to next selection or increment value
B = Go back to previous selection or decrement value

Table 2: Signal generator commands.

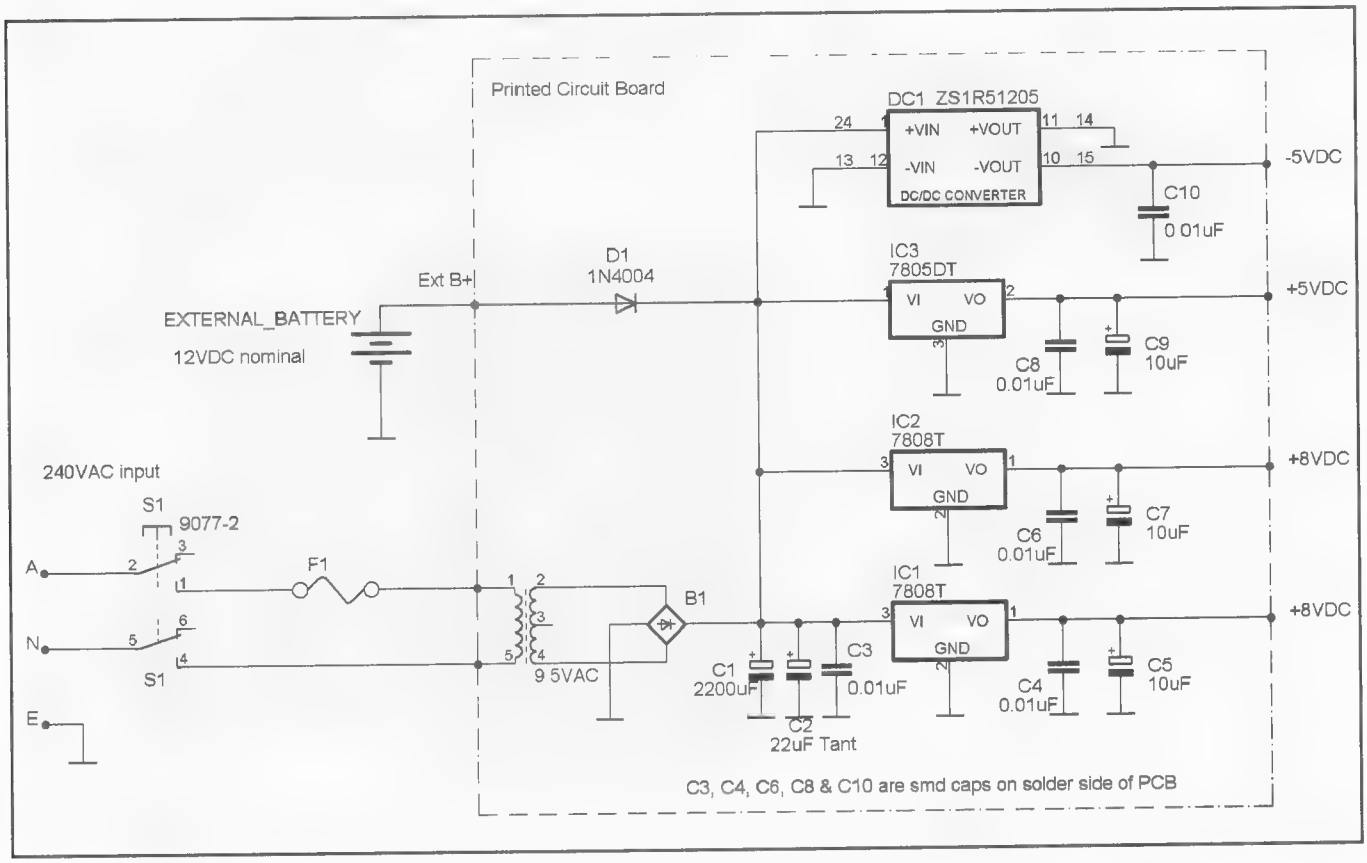



Figure 9: Power supply schematic diagram.

**QSL Travels:**

**ALASKAN**

**Amateur Radio Adventure**

***Join us for an***

***ADVENTURE***

***August, 2005***

**Join us for an Alaskan Amateur Radio Adventure as the South-Eastern Wisconsin Chapter 162 QCWA (K9AKG) hosts the *International QCWA (W2MM)* 2005 Convention. The Convention will be held on a cruise to Alaska with options of joining a *DX-Pedition to Fox Island* or an *extended pre-cruise land excursion*.**

The Alaskan Adventure is open to all Radio Amateurs and interested parties.

**You do not need to be a member of QCWA to take part.**

This is an excellent opportunity to get to know hams from around the world and also to **BE THE DX**.

There are several options available for this Alaskan Amateur Radio Adventure. The extended land excursion and the DX-pedition are both before the cruise. The hams in the family may wish to take part in the DX-Pedition while the other family members join us for an extended land excursion by rail.

We invite you to browse our website and see what Alaskan Amateur Radio Adventures await.

**www.qsltravels.org**

## General construction and performance of the signal generator

As various parts of the signal generator consist of high-speed digital circuitry, there is a high likelihood of digital noise being coupled into the output signal if appropriate preventative measures are not taken. To avoid this problem it is important that the various sub-assemblies are well screened from each other and screened cable is used for all analog signal lines. It is also important that the power supply is sufficiently decoupled and adequate filtering is provided so that noise is not coupled via the power supply, thus extensive use of feed-through capacitors is made and each section of the system is supplied through its own voltage regulator.

As the DDS chip generates the output signal digitally, a filter will be required to ensure a completely clean output frequency (depending upon the application of the device). The AD9835 data sheet indicates that wide band noise is generally less than 50 db below the carrier, with appropriate output filtering it should be possible to reduce the noise to better than 70 db below the carrier. This design incorporates no filtering as it was meant to be a general-purpose instrument. In practice, it appears that outputs below approximately 10 MHz are very clean. As the output frequency rises the output waveform gets increasingly distorted and wide band noise increases as the number of steps in each cycle decreases. The theoretical maximum output frequency of the DDS chip is 25 MHz, or half the clock frequency, however one author suggests that an upper limit should be $F_{clk}/3$ rather than $F_{clk}/2$ (Ref 5). The frequency of any spurious outputs can be calculated easily using:

$$F_{spur} = M \times (F_{clk} \pm F_o)$$

Where

$F_{spur}$ = Frequency of spurious output,

$M$ = 1,2,3 etc,

$F_o$ = desired output frequency,

$F_{clk}$ = reference clock frequency (50 MHz in this design).

It can be seen that spurious outputs approach the frequency of the wanted output as the wanted output rises towards $F_{clk}/2$. Thus removal of spurious frequencies is more easily achieved by keeping the output frequency less than $F_{clk}/2$. The worst-case amplitude of the spurious components is approximately 6N db below the carrier, where N is the number of effective DAC bits - 10 bits in this case. Reference (5) gives a very good account of the noise, distortion and spurious frequency effects in DDS systems.

Most of the minor components should be readily available from a number of

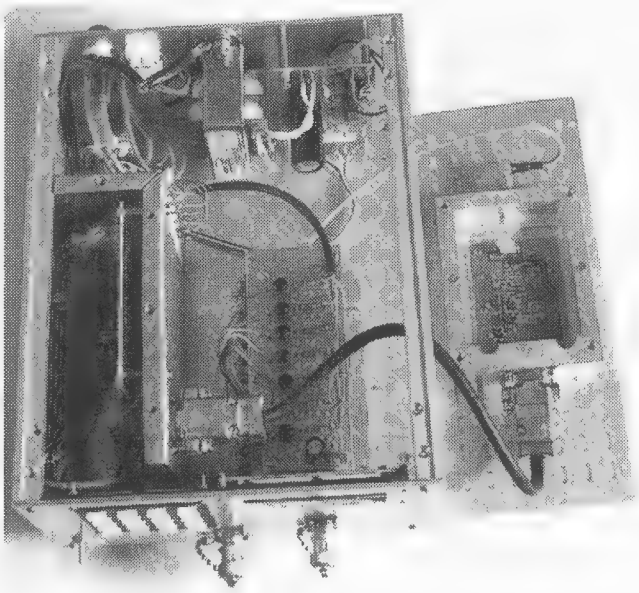


Figure 10: An inside view of the generator showing the DDS on the right, the attenuator module in the centre, the microprocessor module on the left and the power supply on the rear panel.

sources. A description of some of the major components and their source is listed below:

LCD: Jaycar QP-5515

16 Key Pad: Jaycar SP-0772

DDS Chip: Analog Devices AD9835, Farnell 334-3042

Microcontroller: AVR 90S8535, Dick Smith Z-9205

The bistable relays used in the attenuator were sourced from the junk box and may be difficult to find. They were manufactured by 'Aromat' and the type number is S2EB-L2-5. A search on the internet should find a source or possible equivalents.

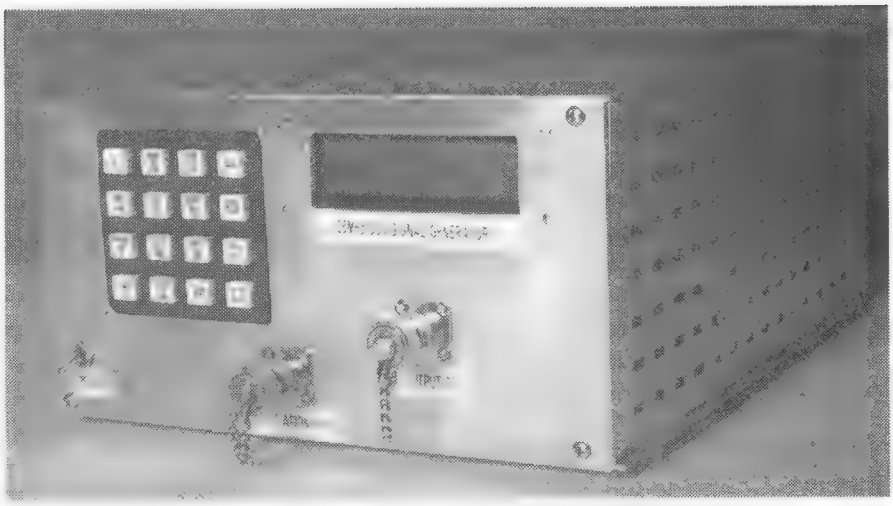


Figure 11: The complete instrument.

## Conclusion

A design for a DDS based signal generator has been presented, which offers a high level of performance and flexibility. Artwork for the printed circuit boards can be provided to interested constructors. Also, I'm happy to provide programmed micro-controllers for the cost of the device and postage. Email me at: Dale_E_Hughes@bigpond.com

## References:


(1) 'A 10 MHz Direct Digital Synthesis Generator', D. L. Jones. Silicon Chip, May 2003.

(2) Analog Devices data sheet for AD9835 DDS chip*

(3) Analog Devices Application note EVAL-AD9835EB*

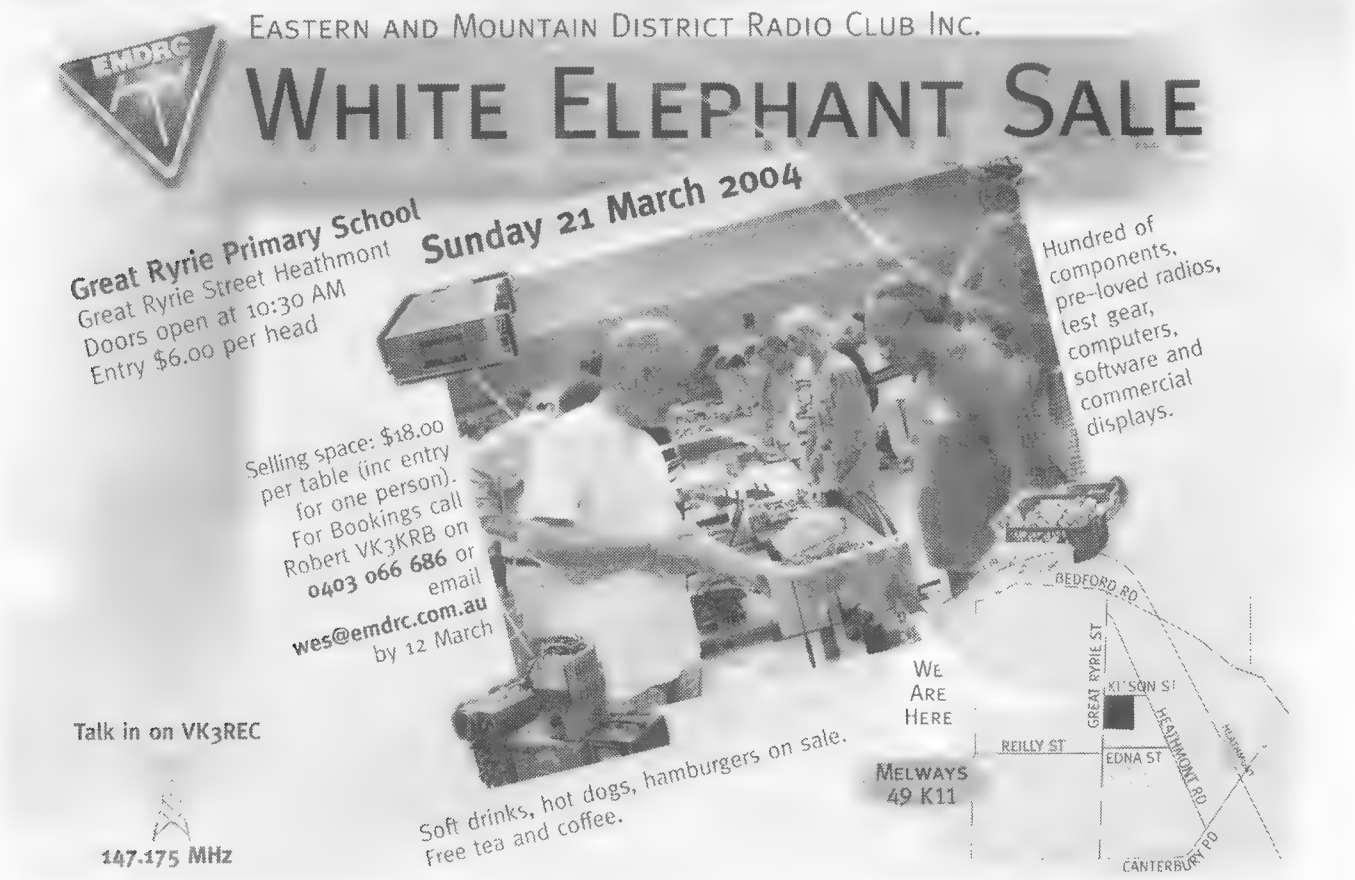
(4) 'Solid State Design for the Radio Amateur'. ARRL 1977. P150

(5) 'Direct Digital Synthesis', B Bergeron, NU1N. Communications Quarterly, Vol 3, Num 3, 1993.

(6) The Internet offers many pages of DDS information.

*Available from http://www.analog.com


ar

# Beyond our shores

**David A. Pilley VK2AYD**
davpil@midcoast.com.au

**Looking back over the 3 years I have had the privilege of writing this column, there has been so much happening involving Radio Amateurs. They have been involved in big disasters, providing communications where other means of communications have failed. Probably the most significant change was the removal of telegraphy and the new licence levels in the U.K. No doubt we will follow a similar path here in Australia. On the last weekend in November, I took part in the CQ CW WW contest and, although conditions were not good, there appeared to be twice as many stations participating. Perhaps taking something away from some people has given them the incentive to use it? Whatever, we look forward to a great future and I am sure there will be many new changes around the world that will effect us home here during the next 3 years.**

## Future RFI

**As a regular user of our local library this one caught me eye – Book RFI!**
Remember those Radio Frequency I-D tags that are of such concern to ham radio? You will never guess where they are about to show up. Ken Butler, W1NNR, tells us: The San Francisco Public Library plans to track books by inserting an RFID tag to each one. These are the same radio tags that hams tried to get the FCC to not deploy earlier in 2003. Now, library officials in the Bay area say that they will install the RFIDs into the roughly two million books, CDs and audio visual materials. The system still needs funding and probably will not be ready for deployment until at least 2005. So in a few years when you receive QRM to your ham radio operations, you might find that its coming from that novel you are reading late at night.

(Science Today via ARNewsLine)

## Look for more ZAs

**Ham radio training is now available in Albania thanks to a new internationally sponsored training programme.**
A unique amateur radio program started in Tirana, Albania the 9th of November. Thirty-four third and fourth-year university students began a five-week amateur radio course using RSGB study material as the reference books. The course will culminate in CEPT licence examinations. It is being run in cooperation with Mr. Spartak Poci, the Albanian Minister of Telecommunications, and the Polytechnic University of Tirana.

A unique part of the program is the way in which amateur radio is being integrated into the regular university courses. The course will not only teach amateur radio up to the RAE Full-license standard, but also the role of amateur radio in society, QSLing practices and successful DXpeditioning. As this is a 5 week course, by the time you read this you should have added a few ZAs into your log!

(ARNewsline)

## Sam Voron VK2BVS honoured by Prime Minister

Australia's Prime Minister John Howard and Foreign Minister Alexander Downer expressed gratitude for Australian ham radio training in developing countries. A certificate sent on 26 September 2003 to Sam Voron VK2BVS reads. "The Australian Government expresses its gratitude to Sam Voron for a valued contribution towards assisting developing countries to reduce poverty and achieve sustainable development". Signed by Prime Minister John Howard, Foreign Minister Alexander Downer and Member of House of Representatives Dr Brendan Nelson MP. In 2003 Sam spent 6 months overseas in Somalia where he organised an amateur radio training course.

(QNEWS)

## Real broad band radio

The CGC Communicator are reporting police or fire engines may soon be able to override the radio in your car. Jacksonville Florida based Safety Cast announces that it will soon test a new mobile alert system. One that will allow a police officer or ambulance driver to take over a car radio within a distance of about 1000 feet and broadcast a brief alert tone and warning message. *It doesn't say whether it's HF or VHF but the mind boggles at the type of transmitter that will be used!*

(ARNewsline)

## South Africa makes changes

It's proposed the Morse requirement for the ZS licence be dropped 12 to 5 wpm. Also that applicants for the ZU license will no longer be tested for proficiency in Morse code. A new licence class is to be introduced with the callsign prefix ZT. This license will not have any Morse code requirement. The holders of ZT licenses will have full VHF privileges and will be permitted to transmit with a maximum power output of 100 W on portions of the 160/80/40 and 15 meter bands.

(QNEWS)

## High school amateurs

49 youngsters are now licensed hams and are the newest members of Pennsylvania's Trinity High School Radio Club. This, thanks to a program called "Train the Trainer" by Pete Di Volpi K3PD, a teacher named Sean Barnes N3JQ and the Harrisburg Radio Amateurs Club V-E Team.

The Trinity High School Radio Club operators station KB3JAG. Barnes started the radio club so lower classmen could get exposure to the hobby before they attend their physics class. He notes that the school's physics program and the principles of amateur radio tend to integrate very well. The Harrisburg Radio Amateurs Club is a Special Services club in central Pennsylvania. It has only 100 members, but has seen over 100 new licensees produced in the last two years from their V-E and Train the Trainer programs. Teachers that are interested in Sean Barnes curriculum can e-mail him to SeanBarnesPolo@aol.com (W3UU, K3PD)

(ARNewsline)

# Students link up with outer space

Doug Tamblyn VK5GA

**Renmark Primary School students heard about the hairier moments of life in outer space this week. Year 6 and 7 students were given the opportunity to ask astronaut Mike Foale questions about life on the International Space Station.**

Renmark Primary School students with Mike Foale projected in the background, Photos courtesy of Doug Tamblyn VK5GA

Students from Renmark Primary School talk to Mike Foale on the ISS with Ivan Smith VK5HS assisting.

Student Brianna Barton 12 asked about Mr Foale's scariest moment as an astronaut. "I asked him what his most nerve-wracking moment in space was and he said there was a collision with their supply ship". I also asked what he does for fun and he told me he writes in his journal and makes videos for his family". Student Tom Athanassiou 13 asked Mr Foale what it sounds like in space. "He told me that at one stage he turned off all the fans and he couldn't hear anything, it was dead quiet".

The astronauts are not able to leave the fans off for long because it would lead to a carbon dioxide build-up. Mike Foale also told the students he believes people will be living on the moon in another 10 years, and he had wanted to be an astronaut since the age of six. The link-up between the school and the space station was done by a group called ARISS which stands for Amateur Radio International Space Station.

These are a group of Amateur Radio enthusiasts who work with NASA to link up schools with astronauts.

The link-up was assisted by Renmark Radio enthusiast Ivan Smith VK5HS. Event organiser school teacher Faye Brodie said the idea of the link-up came from a former Paringa man Tony Hutchison VK5ZAI. "It all started last year with Tony Hutchison VK5ZAI, he had a lot of connections with the international space station," Mrs Brodie said. He connected up with (astronaut) Andy Thomas at one stage.

**ar**


The *revolutionary* VK4VKD

**One Man Tower**

**Freestanding Self-erecting 10m to 25m**

Fully adjustable delta loop rotatable antenna 1-2-3-4 element
D.I.Y. delta loop element to boom 'hubs'
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aeitower@ihug.com.au
Tel: 07 3800 0551 Mob. 0414 254 080
Fax 07 3800 8003

# WIA DXCC Standings (335)

## – 1st January, 2004

**Mal Johnson VK6LC**

| Callsign | Countries |
|---|---|
| *Honour Roll(326)Phone* | |
| VK5MS | 335/389 |
| VK4LC | 335/382 |
| VE6VK | 335/371 |
| VK4UA | 335/370 |
| VK5WO | 335/368 |
| VK6LK | 335/360 |
| VK3AMK | 335/354 |
| VK3QI | 335/349 |
| VK3AKK | 335/348 |
| VK2FGI | 335/341 |
| VK3DYL | 335/341 |
| VK3SX | 335/341 |
| VK3EW | 334/340 |
| VK6NE | 333/349 |
| VK2AVZ | 333/344 |
| VK1ZL | 333/339 |
| VK6HD | 332/358 |
| VK2DEJ | 332/338 |
| VK3OT | 331/345 |
| VK4OH | 330/337 |
| VK6APK | 330/335 |
| VK4AAR | 330/334 |
| CT1EEN | 330/000 |
| VK3CSR | 329/338 |
| VK3YJ | 327/333 |
| *General listing-Phone* | |
| VK7BC | 324/329 |
| EA3AKN | 323/331 |
| VK5FV | 323/326 |
| VK3EUZ | 323/324 |
| VK4SJ | 321/322 |
| VK6VS | 319/323 |
| VK1TX | 319/000 |
| VK6ABS | 316/000 |
| VK4LV | 313/307 |
| VK2UK | 312/317 |
| VK3JI | 310/325 |
| VK6LC | 307/310 |
| VK6RO | 306/313 |
| VK4ICU | 303/305 |
| VK3IR | 302/306 |
| VK6DY | 297/301 |

| Callsign | Countries |
|---|---|
| JA3EY | 296/300 |
| VK4EJ | 291/293 |
| VK2HV | 288/000 |
| VK4BAY | 287/290 |
| VK2CSZ | 286/289 |
| VK7TS | 285/286 |
| VK3DP | 274/277 |
| VK6ANC | 273/277 |
| VK2CA | 265/000 |
| *General listing-Phone* | |
| VK3UY | 264/266 |
| VK3VQ | 261/278 |
| VK2XH | 257/000 |
| VK8NSB | 255/000 |
| VK3CIM | 254/258 |
| VK8DK | 249/250 |
| VK2FHN | 238/000 |
| VK8KTC | 231/233 |
| VK4AO | 227/000 |
| VK8AM | 225/000 |
| 9V1RH | 216/218 |
| VK4IL | 212/000 |
| VK3DVT | 206/209 |
| VK6BH | 200/000 |
| PY2DBU | 195/197 |
| VK7JAB | 186/000 |
| G0VXX | 184/000 |
| VK6EH | 170/000 |
| VK4CHB | 167/168 |
| VK4BP | 164/000 |
| VK4ARB | 159/160 |
| VK2EJK | 153/000 |
| VK2GSN | 152/000 |
| VK7LUV | 148/000 |
| VK5EMI | 148/000 |
| VK2SPS | 141/143 |
| VK8LC | 137/000 |
| OK1ZSV | 136/000 |
| VK3DQ | 133/147 |
| SV1XV | 130/131 |
| VK4FNQ | 130/000 |
| VK4VIS | 127/129 |

| Callsign | Countries |
|---|---|
| VK5ATU | 126/128 |
| VK2IRP | 125/101 |
| TG8NE | 125/000 |
| SM6PRX | 121/126 |
| VK4EZ | 119/125 |
| VK2MH | 116/118 |
| VK5UO | 112/115 |
| VK2JAU | 111/000 |
| VK3MRG | 108/000 |
| VK2QV | 107/000 |
| AX4EJ | 105/000 |
| VK9RS | 104/000 |
| ZS6IR | 102/104 |
| VK6ISL | 102/000 |
| SV1GYG | 102/000 |
| SV1FTY | 102/000 |
| 3W2LC | 102/000 |
| VK2EJM | 101/103 |
| VK3KTO | 101/102 |
| *General listing-Phone* | |
| VK1PRG | 101/000 |
| HS1NGR | 101/000 |
| VK5JAZ | 100/000 |
| *Honour Roll(326)CW* | |
| VK3QI | 334/346 |
| VK6HD | 333/354 |
| VK5WO | 331/347 |
| *General listing-CW* | |
| VK3AKK | 312/317 |
| VK3KS | 307/335 |
| VE6VK | 303/326 |
| VK4LV | 297/300 |
| VK4ICU | 291/000 |
| VK3JI | 274/299 |
| VK6MK | 249/252 |
| VK7BC | 246/255 |
| VK2CWS | 245/247 |
| VK3DP | 245/247 |
| VK4DA | 237/239 |
| VK3CIM | 235/236 |
| VK3DQ | 234/261 |

| Callsign | Countries |
|---|---|
| VK7TS | 219/000 |
| IK1ZOD | 210/000 |
| DL7PA | 203/000 |
| VK5UO | 171/172 |
| VK4UA | 151/164 |
| VK4AAR | 144/146 |
| VK8AM | 138/000 |
| N0TM | 135/000 |
| VK7DQ | 131/132 |
| DL6UGF | 126/000 |
| DK6AP | 120/000 |
| K5QNM | 110/113 |
| VK5BWW | 110/113 |
| SM6GZN | 110/111 |
| VK4CXQ | 106/000 |
| UR5BCJ | 103/105 |
| SM6PRX | 101/102 |
| *Honour Roll(326)Open* | |
| VK4LC | 335/382 |
| VE6VK | 335/380 |
| VK4UA | 335/372 |
| VK5WO | 335/372 |
| VK3AMK | 335/354 |
| VK3QI | 335/350 |
| VK3AKK | 335/348 |
| VK3OT | 334/348 |
| VK7BC | 334/343 |
| VK6HD | 333/360 |
| VK2AVZ | 333/344 |
| VK3UY | 333/336 |
| *General listing-Open* | |
| VK4AAR | 332/336 |
| VK2UK | 323/318 |
| VK3JI | 322/351 |
| VK4LV | 320/319 |
| VK6RO | 315/322 |
| VK4DV | 313/328 |
| VK4ICU | 311/313 |
| VK6LC | 308/311 |
| VK3DP | 305/308 |
| VK7TS | 295/296 |

| Callsign | Countries |
|---|---|
| VK2HV | 289/000 |
| VK3CIM | 284/288 |
| VK3VQ | 276/293 |
| VK6ANC | 276/280 |
| VK6MK | 256/259 |
| VK8NSB | 256/000 |
| PY2DBU | 254/257 |
| VK5UO | 251/255 |
| VK2CWS | 251/253 |
| VK3DQ | 246/275 |
| VK2FHN | 243/000 |
| VK4DA | 237/239 |
| VK8AM | 236/000 |
| VK4CHB | 177/179 |
| 9A4KA | 168/000 |
| DL6UGF | 161/000 |
| VK5ATU | 158/160 |
| VK3VB | 153/155 |
| SV1XV | 142/144 |
| VK2SPS | 142/143 |
| VK4EZ | 140/147 |
| ON9MCR | 129/140 |
| VK3OZ | 126/127 |
| VK7CQ | 123/125 |
| N0MSB | 117/000 |
| VK9RS | 111/000 |
| VK2AJE | 109/000 |
| VK3MRG | 109/000 |
| *General listing-RTTY* | |
| VK3EBP | 253/255 |
| VK3AMK | 200/202 |
| SP3CUG | 124/000 |
| VK5RY | 100/102 |
| (Vacant) | 000/000 |
| *Gen-listing 6m. Open* | |
| VK4FNQ | 137/000 |
| VK4ABW | 109/000 |
| *Gen-listing-2m. Open* | |
| (Vacant) | 000/000 |
| *Gen-listing-Satellite* | |
| VR2XMT | 112/114 |

The WIA DXCC program has been audited to the month of **Dec 2003**, if you find your Callsign not listed it means you have not updated in the past 5 years or your score has dropped below 100.

The **"New" Federal Awards Website** in Perth was officially opened on 26th December 2003. Two years of design and developments are now featured on our website, to view and to download computer files in many Microsoft versions of our 8 awards and

Henry in PH57NK, vk8ha@octa4.net.au

# The removal of the CODAR on the 24 MHz band

Many thanks to Arasu, VU2UR, our Chief at the Region 3 IARU. The Hong Kong Codar was moved at the end of September, 2003 to the GREAT JOY of the Local Radio Amateurs in that area.

The Humpty Doo Codar seems to be still operating on the same frequency but with very little interference to VK8HA at the 'rear' of his antennas. It does not even lift the S-Meter off 0, so no interference working DX. Antenna used is an 8 Element Log above the Gum Trees!

Have not been able to obtain official frequencies of the Codar but according to my receiver, they are just over the 25.000 MHz mark.

I was listening on the 24 MHz band, 24 hours a day for three weeks, with Japanese and other Asian stations coming in here strong after daylight, around 2230, working North and South Americans. The DX stations were very low here during the daytime, VK stations were also heard calling DX. From Humpty Doo, DX in Europe and Africa were worked with good signals around 0800.

From VK4, VK4ZRT, reports 13 UNIDENTIFIED intruders on the 14 MHz band, appear to be mainly Indonesian SSB stations, but also a few TTY stations. On 28 MHz 3 Asian SSB stations were heard.

VK6XW reports hearing 53 SSB Intruders on the 14 MHz band mainly Indonesian.

The Indonesians who have been using 14335 have vanished and have not been found again. The 14.144 have gone LSB and up to 14.145. 14.252 has also stopped and not found again. The 'Digital" on that frequency may have shifted them ?? Karl says that 14333 has also been abandoned!! Also 'SEASON GREETINGS' from Karl, vk6xw..

That concludes the report for this Month. So FELICES FIESTAS to all Observers and see you next year.

## To Be or Not To Be

### Intruderwatch Observer and Coordinator guidelines

1. You need to be able to Receive and Transmit on all Amateur Radio HF Bands.
2. You need to be able to receive twenty words per minute of Morse and Asian CW.
3. You need to have an understanding of Region III languages, mainly Indonesian and Chinese.
4. You need to have one Beam Antenna, TH6DXX or similar, with an accurate Control Unit for obtaining accurate Bearings.
5. You need a Log Periodic Antenna to cover 10, 18, and 24MHz Bands. For 7MHz, if possible a three element Beam, otherwise dipole, and for 3.5MHz , a dipole.
6. A 'lot of time' to chase Intruders on our Bands .
7. We need IDENTIFICATION of Intruders so action can be taken to remove them from OUR Bands. The least is Language-Country-and if possible, the position of the Transmitter.
8. The 'Pirates' that occur mainly on the Eastcoast of Australia should be Located and Reported to your Local Radio Inspector who will organize a 'trip' with the Federal Police who will set a stop to the 'Illegal' Operations.

Please bear this in mind as you will need all your resources when in amongst Intruders.

Cheers de Henry in Humpty Doo, vk8ha@octa4.net.au

## WIA DXCC Standings (335)*...continued*

information. The National Website URL is unchanged: http:www:wia.org.au/awards

It has a direct link to: http://members.iinet.net.au/~vk6wia/wia-awards-federal-1-index.html

The **"New" Federal Awards CD-ROM** is now available free to all WIA affiliated clubs. Its contents include all our 8 awards, a 3 minute Audio Visual PowerPoint presentation suitable for field days and club nights, saved in Windows 98 and WindowsXP versions,

## WIA DXCC Certificate achievement awards

DXCC 125, 150, 175, 200, 225, 250, 275, 300, 325. DXCC Honour Roll. 326. DXCC Excellence 335. Achievement award labels are free for one Certificate only to financial W.I.A. members. A small fee is charged for all non-financial members and extra award labels.

Those who would like to upgrade their Certificate should enclose a SAE including two of your QSL cards to prevent postage distortion. These are available now from the Federal Awards Manager.

Members submitting DXCC updates and require returned confirmation please enclose a SAE.

2004 will also see a **"New designed DXCC Certificate"**, suggestions are welcome.

If you notice a callsign listed and they are deemed to be "silent key" please advise me. All of the Federal Awards are now computerised and we are in the process of scanning all existing documents. We have developed our Award Documents using the standard intelligent Microsoft Excel spreadsheet document, these are saved to a common file that will run on Excel 5.0/95 & 97-2002 versions.

For those that are on internet email system we recommend you enjoy the fast service offered by our new computerised awards system. One document is used repetitively for the life of the DXCC award.

Awards and information are available by Email to awards@wia.org.au or by post to

Federal Awards Manager P.O.Box 196. Cannington. Western Australia. 6987.

**"de Mal. VK6LC"**

# Over to you

## Protocol 802.11 in Australia– use of Spectrum at 2.4 GHz

**I write in my capacity as Deputy Manager Spectrum Planning in the Australian Communications Authority (ACA) to offer comment on the article "802.11 Protocol and Ham Radio" in the September 2003 issue of the Amateur Radio (AR) magazine. The article discusses opportunities for amateur radio operators to use 802.11 technologies, mainly in spectrum around 2.4 GHz.**

The article makes reference to the Rules and Regulations of the Federal Communications Commission in the USA for information on what is provided for under those regulations, both in terms of what is authorised specifically for amateur radio and generally for short-range 802.11 applications in that country. Unfortunately, the article does not refer to the regulatory arrangements that apply in Australia. A reader could be excused for believing that USA regulation somehow directly applies to Australia, or that there are no applicable Australian regulatory arrangements.

I encourage Amateur radio operators wishing to experiment with 802.11 technologies to acquaint themselves with the bands of operation authorised for amateur radio activities and the other conditions of operation provided for by the Radiocommunications Licence Conditions (Amateur Licence) Determination. AR readers can view or download a copy from the ACA's website at URL:

http://www.aca.gov.au/aca_home/legislation/radcomm/determinations/lcd/amateur.htm

Under the determination, spectrum immediately below 2.4 GHz is not available for amateur use in Australia (the September article refers to the FCC Rules that support amateur use down to 2.39 GHz in the USA). In January 2000, the Minister for Communications, Information Technology and the Arts designated the band 2302 - 2400 MHz throughout Australia as part of the spectrum to be allocated by issuing spectrum licences. It is now licensed across most of the populated areas of this country to various organisations that currently use it mainly for the delivery of pay-TV services.

The spectrum between 2.4 and 2.45 GHz can be used by amateur radio operators under the determination. It is part of a larger band of spectrum beginning at 2.4 GHz and extending in many cases up to 2.4835 GHz that is used also for many short-range applications. These applications include cordless telephones, radio LANs and various other computer peripherals, video-audio senders, barcode readers, wireless projection systems and video surveillance equipment. The ACA's radiocommunications class licences for low interference potential devices and for spread spectrum devices authorise anyone in this country to operate these types of devices, provided the devices are operated within the technical conditions of the relevant licence. Readers can view or download copies of these class licences from the ACA's website at URL:

http://www.aca.gov.au/aca_home/licensing/radcomm/class_licensing/index.htm

In recent years, this band has become very popular for short-range applications, which must rely mainly on the use of low radiated power (as specified in the class licences) to reduce the likelihood that they will cause radio interference to each other - they are operated without individual frequency coordination or registering of location.

I note that under the determination, amateur radio operators may transmit in this band at much higher power levels, so the risk of amateur operations causing interference to the other users of the band is increased. The ACA encourages the amateur radio community to conduct any higher powered experiments in this band with a sense of goodwill towards the many users of low powered devices, so that all parties can continue to share this popular band of spectrum.

**Len Bray, Deputy Manager**
Spectrum Planning Team Radiofrequency Planning Group
Australian Communications Authority (ACA)

**Views expressed in the 'Over to you' column are those of the authors, and do not necessarily reflect the policies of the Wireless Institute of Australia.**

**Send contributions to:**
**The Editor**
**Amateur Radio Magazine**
**34 Hawker Crescent**
**Elizabeth East SA 5112**
**or email:**
**edarmag@chariot.net.au**

### A timely warning to all men

Nearly six years ago at age 49 I was diagnosed with prostate cancer. It was successfully treated with surgery, and I am now quite well. In the last few months there have been some mates who have come to me knowing what I had, with the news that they also had been diagnosed with prostate cancer. A number of these have been Radio Amateurs, some from my local radio club. Hence my desire to speak out to you all.

Because ours is predominately a male hobby, I urge all of you men to take an interest in your health in this area, and the XYLs talk to their men. I feel that you are in a better position to deal with these issues if you have thought about them before they arise. I am not a medical person and am not advocating any particular course to follow, except to say in the interests of having a long and enjoyable time in amateur radio, be aware of this disease. There is a lot of information both on the Internet and from your local Cancer Council.

**73 de David Clegg.**
vk5amk@chariot.net.au

# ACA is failing its customers

The attitude of the ACA in its reply to Lindsay Lawless VK3ANJ's inquiry is disturbing.

While you cannot expect the ACA to investigate every noise source, they are after all, the controlling authority for such matters.

Their high-handed manner is reminiscent of the departmental attitude in the 1950s and 1960s when the Radio Branch was administered by a batch of ultra conservative, very grumpy old men.

I well remember some time ago that we were told new legislation was coming that would define all sources of radio emissions as transmitters and action could then be taken to control even such things as powerline noise, if it interfered with reception.

The current stance of the ACA seems a long way removed from that bold statement.

If the reception of WWV is "fortuitous", does that also mean my neighbour's reception of my signals on his TV is also "fortuitous"? It should be, as I don't broadcast a signal to his or anyone else's TV.

The ACA is a business and accepts payment from its customers, which normally would result in a service being provided in return in any other business situation. How then can the ACA (as it so frequently does) accept payment from its customers and fail to provide a service in return? Any normal business operating in such a fashion would have to justify its actions under consumer protection legislation.

The ACA is not some sacred cow and should be reminded of its duties to its customers who provide its operating revenue, both as clients and as taxpayers. There is nothing frivolous about a complaint of RFI from commercial equipment. If there are hundreds or thousands of such defective devices in operation it would seem obvious that problems will be very widespread. The public should expect protection if the fault is due to poor design and not be fobbed off by some departmental clown using semantics to try to confuse the issue and the customers.

Public servants are just that - servants of the public.

**Geoff Wilson VK3AMK**

## ACA Proposals re Licence classes

After reading the November edition of AR , I noticed that the VK1 News, mentioned the current topic on ACA submissions. The point on absorption of the Novice licensees into the body of the AOCP licensees, is a very valid one.

There is a definite need to provide a realistic bridge between the Proposed Foundation and the current AOCP licences.The idea of Rolling the Limiteds into the full privileges for each licence class, is a sound idea.

**Peter Scales VK6IS**

# Silent Keys

## Athol Manning VK7LR

It is with regret that we inform you that Athol Manning VK7LR passed away early on the morning of 8th December 2003 in the Mersey Hospital. Born in August 1916, during the Depression he got a part-time job helping to wire houses and became interested in electronics. Athol became involved with Devonport's first radio station - 7DR, an amateur station. Athol sat for his amateur radio ticket and was licensed in 1934. He was called up in 1939 with many other amateurs he spent the next 4 years in the Airforce, mainly in the Darwin area and experienced the worst of the Japanese bombing.

When television started, Athol built the first television set in Devonport together with a camera. His brilliance as an electronics technician was recognized by the rather rare award of a fellowship of the Television and Technicians Institute of Australia. Someone summed it all up by likening Athol's passing to the burning down of a whole library. Our sincere condolences go to his wife and family.

Vale Athol VK7LR

**(Ron VK7RN)**

## Keith Johnstone VK7RX

Keith was born in 1912 and in the 1920s his family lived at a sawmilling settlement on Blackman Bay where there were steam logging locomotives. At the sawmill they had two eighty foot aerial poles and he remembered using a regenerative receiver to make a contact with Dunalley, seven miles away.

Keith obtained his amateur licence in the early 1950s and was always a very active DXer. I remember the distinctive signal from his homebrew AM and SSB rigs, but then he bought a commercial rig and sounded just like everyone else.

His dummy loads made from large electric motor slip rings were popular in Hobart and several of us are using power transformers rewound by Keith.

Vale Keith Johnstone VK7RX

**(Richard VK7RO)**

## David Thorne VK7MR

Dave Thorne VK7MR, died peacefully in his sleep on 18th December 2003 following a long illness. Dave was first licensed in the late 1950s as VK7ZAI and became VK7MR in the late 1960s.

Dave trained as a technician in the Post Master General's Department and spent his whole life working in radio, joining the PMG's Radio Branch and continuing as his employer's name changed several times over the years to the now Australian Communications Authority.

Vale Dave Thorne VK7MR

**(Dave VK7DM & Richard VK7RO)**

## Bruce Amos VK7ZBA

Bruce was well known to amateurs especially on the East Coast and was based in Swansea. He ran the East Coast repeater, VK7REC.

Bruce will be sadly missed, our condolences to his friends and family.

Vale Bruce Amos VK7ZBA.

**(Harry VK7AR)**

# Gridsquare Standings

## at 25 November 2003

**Prepared by Guy VK2KU**

### 144 MHz Terrestrial

| | | |
|---|---|---|
| VK2FLR | Mike | 107 |
| VK2KU | Guy | 101 |
| VK3FMD | Charlie | 82 |
| VK2ZAB | Gordon | 76 SSB |
| VK2KU | Guy | 68 SSB |
| VK3BRZ | Chas | 68 SSB |
| VK3EK | Rob | 62 SSB |
| VK3KAI | Peter | 62 |
| VK2DVZ | Ross | 61 SSB |
| VK3CY | Des | 58 |
| VK2EI | Neil | 54 |
| VK3XLD | David | 54 SSB |
| VK3TMP | Max | 53 |
| VK3ZLS | Les | 51 SSB |
| VK3BDL | Mike | 50 |
| VK2KU | Guy | 47 Digi |
| VK7MO | Rex | 47 |
| VK2DXE | Alan | 46 |
| VK3BJM | Barry | 45 SSB |
| VK2TK | John | 44 |
| VK3KAI | Peter | 44 SSB |
| VK3WRE | Ralph | 44 SSB |
| VK2DXE | Alan | 43 SSB |
| VK3CAT | Tony | 39 |
| VK3KEG | Trevor | 39 |
| VK4TZL | Glenn | 38 |
| VK4KZR | Rod | 33 |
| VK3ZUX | Denis | 31 SSB |
| VK3HZ | David | 30 |
| VK7MO | Rex | 30 SSB |
| VK2TK | John | 29 SSB |
| VK3KME | Chris | 28 SSB |
| VK6HK | Don | 28 |
| VK2KRR | Leigh | 27 FM |
| VK4DFE | Chris | 26 SSB |
| VK7MO | Rex | 24 Digi |
| VK2TG | Bob | 23 SSB |
| VK3YB | Phil | 23 |
| VK3KAI | Peter | 21 Digi |
| VK5ACY | Bill | 21 SSB |
| VK6KZ | Wally | 20 |
| VK3BBB | Brian | 19 |
| VK3TLW | Mark | 19 SSB |
| VK3AL | Alan | 18 SSB |
| VK2TK | John | 16 Digi |
| VK6KZ/p | Wally | 16 |
| VK3ZYC | Jim | 14 SSB |
| VK3DMW | Ken | 13 |
| VK2CZ | David | 12 |
| VK7ZSJ | Steve | 12 |
| VK2EI | Neil | 11 Digi |
| VK2DXE/p | Alan | 10 |
| VK3ANP | David | 10 |
| VK2EAH | Andy | 5 SSB |
| VK2TWO | Andrew | 5 |
| VK3ZDR | David | 5 SSB |
| VK2AKR | Neil | 3 Digi |
| VK2DXE | Alan | 3 Digi |
| VK3BG | Ed | 3 SSB |
| VK4TJ | John | 3 SSB |
| VK2AKR | Neil | 1 SSB |

### 144 MHz EME

| | | |
|---|---|---|
| VK2FLR | Mike | 110 |
| VK2KU | Guy | 74 |
| VK3CY | Des | 70 |
| VK2KRR | Leigh | 10 |
| VK7MO | Rex | 8 |
| VK3KEG | Trevor | 4 |
| VK3FMD | Charlie | 3 |
| VK2DVZ | Ross | 2 |
| VK2DXE | Alan | 2 |

### 432 MHz Terrestrial

| | | |
|---|---|---|
| VK2ZAB | Gordon | 53 SSB |
| VK3BRZ | Chas | 49 SSB |
| VK3XLD | David | 46 SSB |
| VK3FMD | Charlie | 43 |
| VK3ZLS | Les | 40 SSB |
| VK2KU | Guy | 37 |
| VK3EK | Rob | 34 SSB |
| VK2KU | Guy | 33 SSB |
| VK3CY | Des | 31 |
| VK2DVZ | Ross | 29 SSB |
| VK3BJM | Barry | 29 SSB |
| VK3BDL | Mike | 26 |
| VK3KAI | Peter | 26 SSB |
| VK3HZ | David | 25 |
| VK3TMP | Max | 25 |
| VK3WRE | Ralph | 25 SSB |
| VK3KEG | Trevor | 21 |
| VK7MO | Rex | 16 |
| VK3CAT | Tony | 14 |
| VK4KZR | Rod | 14 |
| VK2TK | John | 13 SSB |
| VK3TLW | Mark | 13 SSB |
| VK3ZUX | Denis | 13 SSB |
| VK6KZ | Wally | 13 |
| VK2KRR | Leigh | 11 FM |
| VK4TZL | Glenn | 11 |
| VK3AL | Alan | 10 SSB |
| VK3ANP | David | 10 |
| VK3YB | Phil | 10 |
| VK2TG | Bob | 9 SSB |
| VK4DFE | Chris | 9 SSB |
| VK3BG | Ed | 8 SSB |
| VK3KME | Chris | 8 SSB |
| VK6KZ/p | Wally | 8 |
| VK3BBB | Brian | 7 |
| VK2FLR | Mike | 6 |
| VK2KU | Guy | 5 Digi |
| VK3BRZ | Chas | 4 Digi |
| VK3ZYC | Jim | 4 SSB |
| VK2CZ | David | 3 |
| VK2TWO | Andrew | 3 |
| VK7MO | Rex | 3 Digi |
| VK2DXE/p | Alan | 2 |
| VK3KAI | Peter | 2 Digi |
| VK4TJ | John | 2 SSB |
| VK2AKR | Neil | 1 SSB |
| VK3DMW | Ken | 1 |

### 432 MHz EME

| | | |
|---|---|---|
| VK4KAZ | Allan | 14 CW |
| VK3FMD | Charlie | 4 |

### 1296 MHz

| | | |
|---|---|---|
| VK3FMD | Charlie | 32 |
| VK3XLD | David | 32 SSB |
| VK3BRZ | Chas | 31 SSB |
| VK2ZAB | Gordon | 26 SSB |
| VK3ZLS | Les | 26 SSB |
| VK2KU | Guy | 21 |
| VK3EK | Rob | 20 SSB |
| VK2KU | Guy | 19 SSB |
| VK3KWA | John | 19 |
| VK3WRE | Ralph | 16 SSB |
| VK3KAI | Peter | 15 |
| VK3KAI | Peter | 14 SSB |
| VK2DVZ | Ross | 13 SSB |
| VK3BDL | Mike | 12 |
| VK3BJM | Barry | 12 SSB |
| VK3TMP | Max | 11 |
| VK4KZR | Rod | 10 |
| VK7MO | Rex | 10 |
| VK2TK | John | 8 SSB |
| VK3HZ | David | 8 |
| VK3TLW | Mark | 8 SSB |
| VK3AL | Alan | 7 SSB |
| VK2CZ | David | 5 |
| VK3ZYC | Jim | 5 |
| VK6KZ/p | Wally | 5 |
| VK3BVP | Shane | 4 |
| VK3YB | Phil | 4 |
| VK3ZYC | Jim | 4 SSB |
| VK6KZ | Wally | 4 |
| VK2KU | Guy | 3 Digi |
| VK3BBB | Brian | 3 |
| VK3BG | Ed | 3 SSB |
| VK3KEG | Trevor | 3 |
| VK3ZUX | Denis | 3 SSB |
| VK2DXE/p | Alan | 2 |
| VK2FLR | Mike | 2 |
| VK3CY | Des | 2 |
| VK3KAI | Peter | 2 Digi |
| VK3KME | Chris | 2 SSB |
| VK4TJ | John | 2 SSB |
| VK3DMW | Ken | 1 |
| VK3ZYC | Jim | 1 Digi |
| VK4TZL | Glenn | 1 |
| VK7MO | Rex | 1 Digi |

### 2.4 GHz

| | | |
|---|---|---|
| VK3BRZ | Chas | 11 SSB |
| VK3XLD | David | 11 SSB |
| VK3FMD | Charlie | 8 |
| VK3WRE | Ralph | 8 SSB |
| VK3KAI | Peter | 7 SSB |
| VK3EK | Rob | 5 SSB |
| VK6KZ | Wally | 4 |
| VK3BJM | Barry | 3 SSB |
| VK3KAI | Peter | 2 Digi |
| VK4KZR | Rod | 2 |
| VK3TLW | Mark | 1 SSB |
| VK4TZL | Glenn | 1 |

### 3.4 GHz

| | | |
|---|---|---|
| VK3FMD | Charlie | 8 |
| VK3WRE | Ralph | 6 SSB |
| VK3KAI | Peter | 5 SSB |
| VK3XLD | David | 4 SSB |
| VK6KZ | Wally | 4 |
| VK3EK | Rob | 3 SSB |

### 5.7 GHz

| | | |
|---|---|---|
| VK3FMD | Charlie | 10 |
| VK3WRE | Ralph | 9 SSB |
| VK3KAI | Peter | 7 SSB |
| VK3XLD | David | 5 SSB |
| VK6KZ | Wally | 4 |
| VK3BJM | Barry | 2 SSB |
| VK3EK | Rob | 2 |
| VK6BHT | Neil | 2 |
| VK3KAI | Peter | 1 Digi |

### 10 GHz

| | | |
|---|---|---|
| VK3FMD | Charlie | 9 |
| VK6BHT | Neil | 9 |
| VK3WRE | Ralph | 8 SSB |
| VK3KAI | Peter | 7 SSB |
| VK3XLD | David | 7 SSB |
| VK3EK | Rob | 5 SSB |
| VK6KZ | Wally | 5 |
| VK3TLW | Mark | 3 SSB |
| VK3ZYC | Jim | 3 SSB |
| VK2EI | Neil | 2 |
| VK3BJM | Barry | 2 SSB |
| VK7MO | Rex | 2 |
| VK4KZR | Rod | 1 |
| VK4TZL | Glenn | 1 |

### 24 GHz

| | | |
|---|---|---|
| VK6BHT | Neil | 3 |
| VK2EI | Neil | 2 |
| VK6KZ | Wally | 2 |

### 474 THz

| | | |
|---|---|---|
| VK7MO | Rex | 1 |

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

The guidelines (and the latest League Table) are also available on the website of the NSW VHF Dx Group at www.vhfdx.oz-hams.org - click on Gridsquares.

Next update of this table will be in February 2004.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

# On air party-goers revel in amateur radio's new era

**By Jim Linton VK3PC,**
WIA Welcome to HF QSO Party organiser

Soon after the ACA made its announcement in late October last year that mandatory Morse code tests for amateur licensing would end on 1 January 2004, thoughts turned to how to celebrate this historic occasion.

The author of this article volunteered to take on the task on behalf of WIA Federal and developed an "on air party" concept that enabled all radio amateurs to be involved.

The aim was to maximise participation both within Australia and overseas. The relatively short period of time available to promote the event was the biggest threat to its success.

However once the party invitation was issued all WIA Divisions and many radio clubs quickly gave the event their support. Several IARU member radio societies also joined in by promoting the WIA event globally.

As a result of the publicity campaign, DX stations were looking for VK contacts during the 35-hour long party, giving many first-timers to HF a real taste of working DX.

Noticeable on the bands were a number of long-time full-call radio amateurs, including those not heard on air for many years, who reactivated their stations to be part of the event.

## Fellowship and the amateur spirit

Another measure of success was the interaction between the new arrivals on HF and those who were experienced on those bands.

There was nothing but goodwill shown. Through the efforts of many individuals and groups, Limited and Novice-Limited licensees were given advice and assistance including a few HF transceivers on loan.

It brought the amateur fraternity closer together. One of many examples was the Sunraysia Radio Club that encouraged and assisted local radio amateurs to get on air by providing help mainly with antennas.

Club Secretary, Noel Ferguson VK3FGN said four new stations began operating in the Mildura district as a result of the party. The enthusiasm flowed through to those who have not yet got a licence but were keen to set up listening equipment to tune into the event.

Noel said that he had received nothing but positive comments about the party including no-code licence club members who said: "This has opened up a whole new aspect of amateur radio for us.

"We will join the WIA, as they have done such a great job in bringing about this change that can only benefit amateur radio. Great contacts, a great event."

**The only quick way to describe the WIA Welcome to HF QSO Party is a 'grand success' that created many memories and reinvigorated participants about amateur radio**
***— Jim Linton, Organiser***

Numerous radio clubs reported similar experiences. Some of the larger groups operated their club stations to either give members without gear the opportunity to get on HF and/or as a control point for net style operation.

The Eastern and Mountain District Radio Club station VK3ER worked 30 new HF stations during a two hour net. A bacon and eggs breakfast was turned on at its clubhouse with members swapping their experiences of the party.

Many stations displayed their determination to get on HF by using very basic set-ups including a gaggle of transmitting gear from yesteryear.

Bell wire strung around a room got one on air using QRP. A few admitted visiting their local hardware shop for supplies to make an antenna, on New Year's Eve.

Not all were successful with their first time on HF due to teething problems. These included high SWR, faulty equipment or a lack of experience in how to operate it.

On air lessons were provided on the appropriate use of compression and the RIT/clarifier control.

The skills required for VFO operation were new to many who had only known the channelised environment of VHF/UHF FM. The leaving a three second pause between overs, a requirement for repeaters but not HF operation, was noticeable.

One H-call who did not make himself heard sufficiently to get a single contact during the party still enjoyed the experience of giving it a try and is determined to join others on the HF bands as soon as possible.

Several portable and mobile stations also struggled their way through the saturated band 80-metre in the first 30 minutes of 2004, but by persevering made contacts.

## Midnight bedlam as party begins

As the clock struck midnight Australian Eastern Daylight Time the 80-metre band came alive with wall to wall QSOs.

In the Novice portion of 80 m band every single SSB slot had at least one QSO. While the 40-metre band was not as crowded, it seemed to be the haunt of more long-time Z-call holders. The 20 m band was abuzz with Z-calls on New Year's Day.

Refugees from the overcrowding moved up to 15 m and 20 m. The QSOs mostly were chatty with greetings to HF being freely exchanged, and appreciation by the new arrivals to HF.

WIA stations often manned by office-

# WIA Welcome to HF QSO Party – Gift Draw

**Excellent support for the party was given by six sponsors who donated 25 gifts for a draw containing entries from genuine first timers to the HF amateur bands on 1 January, 2004.**

To enter, Limited and Novice-Limited licensees had to send a log extract of at least ten HF contacts made during the party with WIA stations counting as equal to three contacts.

Here are the draw results:

### $1,000 gift voucher provided by ICOM Australia

Ray Finlayson VK7TRF

### ARRL Handbook donated by WIA NSW Bookshop

Trevor Lewellin VK3HTL

### Yaesu FT100 HF-plus transceiver – donated by WIA

Anthony John Sutton VK4TJS

### 2004 Australian Radio Amateur Callbook & CD donated by WIA

Andrew Russell VK5ZUC
Jacek Szczurek VK3TJS
Dudley Thomas Teakle VK5HBG
Samantha Scafe VK4TTT
Ken Taylor VK3TKQ

### Yaesu FT-817 HF, VHF/UHF portable transceiver supplied by Benelec

Norman Partridge VK2TOP

Drawing the entries is Rob Carmichael JP VK3DTR with scrutineer Keith Proctor APM VK3FT

### WIA Awards Program CDs from WIA Awards Manager, Malcolm Johnson VK6LC

Viv Weekes VK2TVW
David Timms VK3YLV
Colin Thompson VK2TRC
Ian Gillard VK3ZZG
Gregg Zonneveld VK4ZON
Greg Ryan VK4HDG
Paul Barrett VK5ZRT
Robyn Edwards VK6XRE
Raff Lerro VK4XRF
Vince Page VK6ZAR
Ian Rowley VK5ZIR
Michael Borthwick VK3UBM
Ryan Lovett VK2XRL
Warren Frost VK5HWF
Matthew McNeil VK4HAM/3

### Kenwood TS50 HF Transceiver from Kenwood Electronics Australia

Johnny Quarel VK3HJQ

***Check logs received from:*** VK3ZWI, VK5EMI and VK6WIA.

*continued from previous page*

bearers were pounced upon as soon as they were free. A sterling effort was made by Mal Johnson VK6LC who operated VK6WIA for 23 hours during the party.

Mal reported that "VK6WIA operated on 10, 15, 20 and 80. All states were worked and a total of 135 newcomers to HF logged.

"In the closing minutes of the party many stations came on frequency to voice their appreciation of VK6WIA, the organisation of the party, the WIA generally and the gift draw sponsors."

Special VK6WIA QSL cards for each party contact will be issued via the QSL Bureau.

## Media publicity achieved

The party and the end of the Morse code requirement was recognised by the WIA as an opportunity for it to get some good publicity in the news media.

WIA ACT Division Publicity Officer, Peter Ellis VK1KEP issued a media release and as a result was interviewed by Canberra radio stations ABC 2CN and the commercial station 2CC.

Well done Peter! Your initiative generated publicity for the WIA and amateur radio generally.

Another media release issued by Jim Linton VK3PC scored radio interviews in Perth 6PR, on ABC Gold Coast Queensland and ABC Tasmania. Other radio stations simply included reports in their news bulletins.

**ar**

# EMDRC welcome to HF

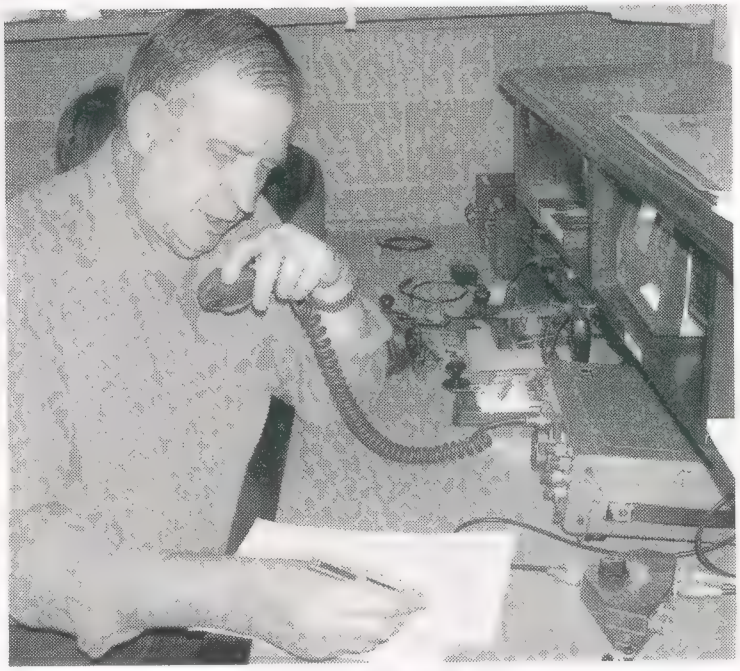
Rob Broomhead VK3KRB
EMDRC Club President

**The EMDRC's club station VK3ER was active from its Burwood clubrooms from 00:00 hours 1st January 2004, manned by Jack Bramham VK3WWW, Keith Proctor VK3FT and Rob Broomhead VK3KRB.**

After listening to the on-air activity the team elected to assist the QSO party by running a net on 80m. The two hour net assisted over 30 new stations make contact with the club station and systematically make contact with each and every other station participating in the net.

For the EMDRC, the lead up to QSO party saw many of its full call members actively assisting those with limited and limited novice tickets set up and tune up their home or portable stations prior to the event. This proved both very beneficial for the new folk preparing to use the bands and quite rewarding for the full calls giving the guidance. Encouragingly, only two folk ended up needing to use the clubroom equipment, one who ended up with microphone problems and the other who appears to have purchased a faulty second hand radio.

Kicking off at 8:30 the following morning the club hosted a special Bacon and Eggs celebratory breakfast at the clubrooms to help mark the occasion. Over 30 members turned up and much enthusiastic discussion and sharing of experiences took place between the limiteds who had been operating the night before and some of the Club's more experienced HF operators. Photographs of the event are available on the EMDRC's website http://www.emdrec.com.au



EMDRC club member and full call operator Keith Proctor VK3FT at the EMDRC clubrooms just after midnight on the 1st of January. The EMDRC ran a net for the Welcome to HF party assisting the new folk to make contact with our club station as well as each other.

**Healesville Amateur Radio Group Inc. C/o P.O. Box 346, Healesville, Vic, 3777**

**VK3GHA**

**Sunday 29th February, 2004**
**10am to 2pm**
**Healesville Memorial Hall**
**Maroondah Highway, Healesville**

***For booking of trestles and further information:***
**Gavin VK3TLN 5968 8482**
**or Carol 5778 7518**
**or email to**
**gpt@celestial.com.au**

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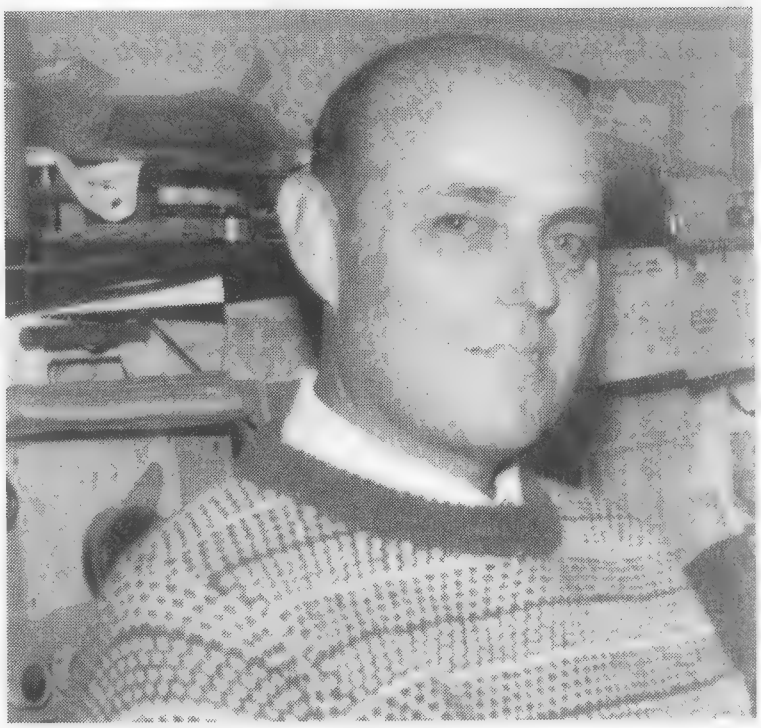
# Gil Sones VK3AUI —Quiet achiever, good friend

**The Australian amateur radio fraternity was saddened to hear of Gil's passing on 27 November 2003. He was a good friend and mentor to countless amateurs over four decades.**



Gil's interest in amateur radio began in his student days. He spent a year at Melbourne University, then transferred to RMIT. After graduating he became a communications engineer with the State Electricity Commission, and this kindled his interest in amateur radio. He first came on the air in the early 1960s as VK3ZGS, and obtained his full call VK3AUI a few years later.

Gil's greatest interest was in VHF, and he was a very competent and courteous operator. Although his main interest was DX, he was just as happy to chat with friends in the local area. However he also became actively involved in many other aspects of the hobby.

He was an active member of the Melbourne VHF Group in the 1960s and 1970s, and served for a time as its president. For some years he also handled the sale of kits and components for the VHF Group and at club meetings, and was always there to lend a hand at all VHF activities. He was also a foundation member of the Eastern and Mountain District Radio Club, and helped out for some time on the Broadcast Committee of the Victorian Division.

Gil particularly enjoyed activities such as scrambles and foxhunts. Sometimes he used his foxhunting skills with great glee to track down illegal operators and to encourage them to become licensed amateurs.

He also enjoyed field days and other outdoor activities. He was very active in WICEN, and in more than 20 years he hardly ever missed the annual Red Cross Murray River Canoe Marathon. He enjoyed the outdoor activity and the social contact, but just as important was the fact that he was there to help other people. His last trip was to north-east Victoria to help during the bushfires in early 2003.

Gil was a familiar figure at club meetings and conventions. If you wanted to find him in the crowd, you simply looked for his trademark hat. Only a few months ago he also became a member of the RAOTC – the Radio Amateurs Old Timers Club.

Gil's most sustained contribution was his work for the WIA Publications Committee, which continued from 1973 until his death. His work for "Amateur Radio" magazine was professional and demonstrated a high level of technical understanding. He didn't always say much at the meetings of the Publications Committee, but when he did speak, everyone took note.

He served as Assistant Editor in 1978 and 1979, Technical Editor from 1980 to 1983, and Editor until June 1984. After that he continued as a Technical Editor from 1984 until his death, and for many years compiled the popular *Technical Abstracts* column.

Over the years Gil also found the time to indulge his urge for travel. During the 1970s and 1980s he made at least eight overseas trips that led him to Russia, China, Europe, the USA, South America, Alaska, Iceland and even Antarctica.

Gil took an early retirement from the SEC in the late 1980s, and took up several new interests including the study of birds, habitat reclamation projects, and community activities such as Neighbourhood Watch. He continued to be active on the air and took every opportunity to get together with his amateur radio friends at meetings and conventions.

In more recent years Gil was committed to caring for his mother, who lived well into her nineties. His own health problems took a more serious turn after the loss of his mother, but never once did he complain. No matter what happened, he would say, "Well, it's just

# Silent Keys

## Henry (Harry) S. Michael VK3ASI

### 1928–2003

Harry passed away in October this year after a short illness. He had lived most of his life in Geelong and looked after a family owned second hand store. After leaving school, Harry joined the Citizens Military Force and attained the rank of Captain.

During the 1950s he joined the Geelong Amateur Radio Club (GARC). He took an active role in the club and served on the committee as Treasurer, Secretary and President. In 1959 he passed the AOCP exam and was issued with the callsign VK3ASI.

Harry saw the need for a different kind of club in Geelong. One that not only catered for radio but for anyone with an interest in audio, model control etc. He and a group of others formed the Geelong Radio and Electronics Society (GRES). This society was formed in 1963 and Harry served 2 terms as President in 1963 and 1964.

Harry was active on HF and took part in the regular "Geelong" 80 m net of a Sunday morning. He was also active mobile on 2 m FM. The first 2m repeater in Geelong was initially a joint venture between the 2 clubs (the GARC and the GRES). Harry was on the committee of management for this repeater for 12 months.

After retirement from working life Harry continued to live in Geelong for a while, but he and his wife Poppy decided to shift to Lancefield to be closer to their family. Again Harry set up his station to keep in contact with his friends in Geelong. He was active on air until his death.

There is a saying "gone but not forgotten". This will certainly apply to Harry. Due to his foresight and leadership he has left a legacy for the people of Geelong. This legacy is the Geelong Radio and Electronics Society that he founded.

*Submitted by Rod Green VK3AYQ on behalf of the GRES.*

## Ann Renton VK4MUM

It is my sad duty to report that Ann Renton VK4MUM has become a Silent Key. Ann lost her struggle with cancer on Thursday January 8th 2004.

Ann was for many years the Ladies Group Co-ordinator of The Townsville Amateur Radio Club Incorporated, a long term member of the Australian Ladies Amateur Radio Association, active member of the Queensland Electrical Institute and an active member of the Townsville Family History Association Inc right up to when her health started to fail mid year 2003.

Ann spent most of December 2003 at the Mater Hospital Pimlico and was supported with love and care by many of her closest friends and family on a continuous basis. With Ann's passing amateur radio has lost an operator whose nurturing, caring nature and organisational skills will be sorely missed.

Ann is survived by husband Peter VK4PV (a former secretary of the TARCinc and current secretary of the QEI), daughter Fiona, sons Mark and Paul and grandchildren. Friends and acquaintances of the Renton family attended Ann's funeral at Wongarra Crematorium, Bruce Highway, Julago (south out of Townsville towards Ayr) on Monday January 12th .

Vale Anne Renton VK4MUM – SK

*Submitted by Gavin VK3ZZ*

## Gil Sones VK3AUI – Quiet achiever and good friend *...continued from previous page*

one of those things, you know". Then he would press on regardless, still looking forward to some new activity. Even in the last months of his life when he knew that time was running short, he was still optimistic and upbeat.

Gil was highly intelligent and knowledgeable, but he never made a big deal of it. He was a modest man who was always there to share his knowledge and help in a constructive way. Over the years he was a mentor to many new or aspiring amateurs, and he was always ready to help if anyone needed technical advice or just a friendly chat. He had such wide knowledge that he could chat on just about any subject. If you had any problems, Gil would always lighten the burden with his good humour and his positive attitude to life.

Just one of many tales of Gil's thoughtfulness was his unannounced visit to an amateur who was confined to his sick bed. Gil had brought along his handheld transceiver so that the ill amateur could stay in touch with his friends.

Gil accepted people as he found them - he never lost his temper or had a harsh word to say about anyone. You could never hope to meet a more good-natured person. He gained respect from everyone just by being himself.

For many of the Australian amateur radio fraternity, Gil has always been there. For us, his passing leaves a gap that can never be filled. We can only say that we were privileged to have known him.

*[Compiled from contributions by Ron Cook VK3AFW, Ian Cowan VK1BG, Lionel Curling VK3NM, Eric Gray VK3ZSB, John Hutchinson VK3JH, John Martin VK3KWA, Ken and Bett McLachlan, John Nieman, Bill Roper VK3BR, and John Weir VK3ZRV.]*

**ar**

# VK1 News

## Forward Bias

Peter Kloppenburg VK1CPK

During the general meeting on Monday, November 2003, the Division extended a big Thank You to those members who had gone out of their way during the year to promote the interests of Amateur Radio and the Division in particular. The Divisional President, Alan Hawes, VK1WX handed out certificates of appreciation to 16 members for help and assistance given during WICEN and other activities, and expressed his appreciation for technical support given in maintaining repeater sites and equipment, and the setting up of new services related to APRS and IRLP. One person in particular, Paul Bell, VK1BX, aka Dinger, was singled out as a person with exceptional dedication to maintaining the operational capability of the Division's repeater system. The time had come to thank him for his efforts because Paul will retire from his job here in Canberra halfway through 2004, and move to Adelaide. It is a fair assumption that he will probably continue his efforts there for our southern confreres.

The VK1 Division assisted the Southern Highlands and Goulburn ARC to restore the 438.025/433.025 MHz repeater on their High Range site west of Mittagong. This site has coverage of the Sydney basin and the Hume Highway, and is a key access point to the 70 cm linked repeater project. While 'off air' linking to Mt Gray at Goulburn is currently configured, this will change once the Mt Ginini hub and link equipment is installed.

Amazingly, although 26 km from the Southern Suburbs of Canberra, LIPD transmissions do interfere with the long standing Ginini 70 cm 438.375/433.375 MHz service – rendering its linking useless. We have ordered the replacement crystals to lower this channel 25 kHz and aim to have this done by Xmas this year. This will also avoid the co-channel interference to the Blue Mountains repeater users on the same channel pair. During the year, the Division received gifts from deceased estates in the form of radios, components and antenna towers. Some of these were brand new and others were more than 70 years old i.e. domestic radios and transmitting valves. A Trash & Treasure sale was held on October 26, which resulted in the sale of about 80% of the goods that were held in storage. Visitors and buyers on the day benefited from the free Sausage sizzle, but were asked to make a gold coin donation for soft drinks from the fridge.

December will be a quiet month for the Division, with only a committee meeting on the second Monday. The next General Meeting will be held at Scout Hall, Longerenong St., Farrer, on Monday, January 26, 2004, at 8.00 pm.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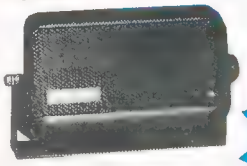
*Using ADSP – amazing pushbutton control of noise. Self-contained or PCB versions

SG 202 HFTransceiver

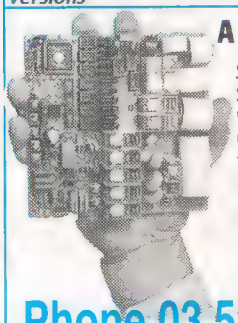
Small, light, rugged, recessed face. Pre-set for 20 watts PEP with front panel power adjustments down to 1W for QRP'ers or up to 20W for serious USB or LSB "hamming". 20 pre-programmed memories preset to each of the 9 worldwide ham bands. Each memory position can be selected for a specific transmitter output power, specific amount of bandwidth filtering, mode and split VFO. Crystal clear.

ADSP2 Speaker



Noise reduction Works with the press of a button. You can select from three modes of operation: no noise reduction, the original ADSP, and the new ADSP2 noise reduction modes which provides up to 26 dB of noise reduction within the passband. The ADSP2 Speaker is "One Touch" simple to operate.

SEE you at WYONG



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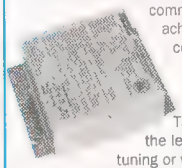
- 1.8 to 60 MHz

The SG-239 Smartuner™ antenna coupler



The SG-239 works with any transceiver to provide long distance communications. With the SG-239 antenna coupler, achieve great results with a longwire antenna or a coaxial fed multi resonant antenna at the apartment window or on a low roof, fits the coupler requirement of many low cost HF transceivers: Scout, Yaesu FT-817, Kenwood TS-50, Icom IC-706, and the K2 kit. Ideal with the legendary SG-2020 transmitter. Silent receiver tuning or within 1.5 to 200 watts with a high power transceiver. 170 memory bins, independent sensors, inc.VSWR, phase, magnitude, low impedance, and forward sensing.

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# Division News

# VK2 News

Tim Mills VK2ZTM.

## Welcome to the New Year

That is just what so many Australian Amateurs did as New Years Day commenced. The HF bands became alive at midnight and without a break they partied on until after dawn. They were then joined by those who had preferred their bed until a more civilized hour. This was the view from VK2WI when the station operated in the WIA Welcome to HF QSO Party. VK2WI spent the night hours on 80 metre – 3595 kHz – logging just over 100 contacts in the first three hours. For the next few hours the pace was a little slower until a break for breakfast at 9 am. After that, operations switched to 40 and 15 metre. Operations ceased from VK2WI at 1 pm with 152 contacts in the logbook. The chief operator for VK2WI was Norm VK2TOP. He was assisted by Brian VK2WBK and Owen VK2AEJ. Also in attendance were Mark VK2XOF and Tim VK2ZTM who kept a supply of antennas and refreshments up to the front line staff.

In a separate competition to the national 'Welcome to HF', the VK2 Division extracted from the log, all Limited and Novice Limited VK2 members making their first HF contact. The winner was Bill VK2ZZF. He received a copy of the ARRL Antenna Handbook, which no doubt he will put to good use as he sets up a new QTH in the Snowy Mountains Region. Bill was a recent announcer on the VK2WI team and still contributes the monthly star report to the news sessions.

Elsewhere in this issue of "AR" VK2 members will find the notice of the forth coming AGM and a call for nominations for the Divisional Council for 2004/2005. Your assistance is required, as is your attendance at the AGM.

The 2004 callbook is available from the VK2 Bookshop. Cover price is $25 with a discount for members at $22. A $3 pack and post applies. The Bookshop plans to be in attendance at the Central Coast Wyong field day on Sunday 29th February. It is being held, as usual, at the Wyong Race Course, which is beside the railway station.

During the recent holiday break, the VK2WI news sessions observed their summer format with morning only transmissions. Included was a three part technical talk on Digital Radio Technology, given by Mathew VK2YAP. This will be repeated this month. The script will be included in the news text on the Division's web site. Thanks have to be extended to Jack VK2GJH, for his regular 6 metre DX report, which he submits to VK2WI. An invitation is extended to operators on the higher frequencies, to compile and submit similar news and activity reports to VK2WI.

The Hunter Radio Group in Newcastle has recently refurbished their 6 metre beacon. VK2RHV has moved to the new frequency of 50.288 MHz where it operates in the CW mode, with 25 watt into horizontal crossed dipoles. It is now located on Mt. Sugarloaf, Newcastle's RF hill. The Hunter Radio Group resume their Monday evening net, which includes segments from the VK2WI news. This will be on Monday 9th February at 7.30 pm. Their first meeting for the year will be on Friday 13th February. A two metre repeater has been licensed for the Bathurst district. The frequency is 146.675 MHz. negative offset. A 70 cm repeater is operational at Dubbo.

The VK2WI morse training transmission, on 3699 kHz and 145.650 MHz., has had some new text installed. It is surprising the number of operators using 80 metre as a band condition indicator. Being 1 kHz from the top of the main 80 metre segment, it provides a band edge marker and reminder of the commercial portion between there and the 80 metre DX window. Maybe the DX portion should be referred to as 75 metre. That is the phone portion for American amateurs, which they refer to as 75 metre. The live CW training session on 80 metre – 3550 kHz – continues several nights per week. While we all know that an ability in code is no longer required for examination, the British experience after the introduction of their Foundation License was an increased interest in Morse code. Both the automatic and manual training will continue as long as there is a demonstrated demand for the service.

The Parramatta office reopened for the year on Tuesday 13th January. Novice classes at Parramatta resumed on Monday 19th January. A Trash and Treasure was conducted in January. The next will be at the end of March. A reminder that the VK2 QSL Bureau is conducted for the Division by the Westlakes Club. The Bureau postal address is P. O. Box 3073, Teralba, NSW, 2284. If any VK2 member needs a postal address for their station, inquire at the VK2 office. A postal address is available for this purpose. See the inside back cover of "AR" for contact points for the Division.

## VK2 Notice

### VK2 Annual General Meeting

**will be held on**

### Saturday April 17, 2004

**Nominations are invited for the nine positions on Council.**

Nominations are to be received at the Parramatta Office on or before the close of business on **Friday, March 5, 2004.**

Nominations in writing must be signed by the proposer, seconder and nominee, all of whom must be financial Ordinary Members of the NSW Division on **March 5, 2004.**

**Owen Holmwood VK2AEJ**
Divisional Secretary

# VK3 News

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au email: wiavic@wiavic.org.au

## Oh what a party

**The WIA Welcome to HF QSO Party on new year's day generated a lot of new activity that is continuing, albeit at a less hectic level.**

A sincere thank you to the large number of WIA Victoria members who supported this WIA Federal initiative by getting on air. Congratulations to the party gift recipients who are listed elsewhere in this edition of AR magazine.

It is clear that the party was fun and united the amateur radio community like nothing else has previously. We can drop the labels "H-call" and "Z-call" because they have now lost their meaning.

The only concern arising out of the large influx of arrivals on the HF bands is the potential for increased television and other alleged interference issues.

The ACA is closely watching to see if interference complaints increase as it considers the future of amateur radio and the proposed introduction of a new entry level licence.

If you are new to HF take precautions against interference. At the first sign of an interference problem seek help from the WIA, your radio club or a knowledgeable radio amateur.

Possible causes of interference include hurriedly created antenna systems, lack of a low pass filter at the transceiver output, or poor adjustment due to unfamiliarity with controls. There is also plenty of literature available on the causes, prevention and cures of interference.

## ACA review of amateur service regulations

This very important exercise is still continuing. The ACA has already made a number of decisions in addition to giving no-code licence holders access to HF bands.

However the big issues, including the ACA proposed draconian "no interference" policy for radio amateurs and consideration of changing amateur licences from apparatus licence to class licence, are yet to be decided.

Several WIA Victoria members and at least one radio club have taken their concerns to their local member of federal parliament. This is a good idea and it's not too late for anyone to let their federal MP know what is happening.

There are real concerns arising out of the ACA's discussion paper and its public consultation process. No harm can be done by exercising your rights by making these concerns known directly to your federal parliamentary representative. On the positive side it will provide these decision-makers with an awareness of amateur radio.

The WIA Victoria Council is continuing to explore ways it can achieve the best outcomes that lead to the long term sustainability of the amateur service in Australia.

## QSL Bureaux

A reminder that the WIA Victoria inwards and outwards QSL Bureaux are a free WIA Victoria membership service. Newcomers to HF will need to register their callsign(s) with the bureau to receive cards through distribution points.

It is also important that before having QSL cards printed that the requirements in terms of card sizes and card weight be checked on the WIA Victoria website or obtained from the WIA Victoria office.

Cards that are oversize or printed on very lightweight card or paper cannot be handled by overseas QSL Bureaux and will not be sent.

Also if you are new to HF, also please check out the WIA band plans which can be found in the callbook or on the WIA Victoria website.

## Review of WIA structure

Informal discussions about the restructure of the WIA began around the middle of 2003 with some interested people having a meeting in Sydney in December.

The WIA Victoria Council discussed the matter late last year but had been provided little detail of what others were proposing and considering.

The Council believes it is essential that any change to the federal structure of the WIA must be fully costed. A business plan is being drafted for a proposed restructure that would see all WIA Divisions hand-over their members, and presumably their assets and liabilities to a new single Institute.

WIA Victoria is seeking to assist in the development of a business plan to determine how a new WIA can be financed and provide membership services.

That exercise should include exploration of how repeaters, beacons, their licence fees, site licences and other costs can be funded, along with a QSL bureau, enhanced membership services and effective representation. Will WIA Victoria members be better or worse off?

There are a lot of "what-ifs" to be considered and answered in this the latest WIA restructure review over the past 30 years. The matter is again due to be discussed when the WIA Victoria Council meets this month.

## WIA Victoria office

Full membership services resumed with the reopening of the office at 40g Victory Boulevard, Ashburton on Tuesday, 3 February.

The first meeting of the WIA Victoria Council was also scheduled to be held on that day. During the holiday closure annual corporate and statutory reports were being completed and assistance given to our auditors.

A reminder that the Annual General Meeting will be held on Wednesday 26 May. Notices of Motion for the AGM close at 2.30pm Friday 20 February.

During the holiday break mail orders received for the 2004 Australian Radio Amateur Callbooks and CD were handled, and some copies are still available for sale.

# Division News

# VK6 News

**Compiled by Will McGhie VK6UU**
Input to: will2@iinet.net.au
08 9292 7165

VK6 notes are back and hopefully will be for a while. Retirement has resulted in less time but provided I can dig up what's happening in VK6 there should be monthly input to Amateur Radio magazine. If any amateurs in VK6 would like their state represented in Amateur Radio magazine, and you have any news, even no news let us all know from time to time that nothing is happening in your area, please email to the above address or phone number.

## Snippets of news from the VHF-SHF region

Here are some of the current activities. Terry VK6ZLT made a quick trip to Busselton (200km South of Perth) beacon to reactivate VK6RBS (1296MHz beacon) which has been out of commission due to power supply problems. Operation confirmed by Alan VK6ZWZ in Perth soon after activation. Groundwork was carried out in preparation for the installation of a 10 GHz beacon at the same site due in the very near future. Everything is built and ready to go. Just the co-ordination of the installation team time wise. I will let you know as soon as the new beacon becomes fully operational.

**Cheers and 73, Terry VK6ZLT**

## VK6 QSL Bureau statistics

The following refers to the incoming QSL cards from overseas, handled by the buro in 2003.

The country is given first, then the number of cards received for that country, then the number of deliveries received from that country.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JA | 2175 | 11 | YL | 38 | 2 | VE | 285 | 2 | Z2 | 2 | 1 |
| LZ | 180 | 1 | SM | 169 | 2 | DL | 685 | 2 | OH | 188 | 2 |
| HL | 230 | 2 | W | 672 | 3 | I | 585 | 1 | LA | 77 | 1 |
| 9V | 98 | 2 | YV | 7 | 1 | SP | 313 | 2 | G | 707 | 1 |
| OE | 158 | 1 | ON+PA | 188 | 2 | YO | 13 | 4 | PY | 4 | 1 |
| OZ | 106 | 2 | 4X | 83 | 1 | 9H | 10 | 1 | YB | 3 | 1 |
| HA | 183 | 2 | ZS | 148 | 1 | EI | 38 | 1 | CE | 4 | 1 |
| UA | 755 | 7 | HB9 | 119 | 2 | OK | 300 | 1 | YO | 33 | 1 |

**TOTAL of 8640 cards**

As reported last year, there have been no cards received from some bureaux for over 2 years.

The outgoing cards totaled 2074. Not a good exchange rate.

For comparision QSL cards handled by the JA buro April 2002 to March 2003

11,244,687 incoming cards for JA - 2,018,235 outgoing cards from JA

**From Neil Penfold VK6NE**

## Annual General Meeting 2004

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia Western Australian Division Incorporated will start at 10am on Saturday 17th April 2004.

The venue for this year's AGM event will be the Dining Room at CWA House 1174 Hay Street West Perth and the agenda will be:

1. Consideration of the Council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business, which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (i.e. by the 5th March 2003), and must be signed by at least three members.

The Secretary's postal address is WIA WA Div. PO Box 10 West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (i.e. by the 5th March 2003), with an intimation that the candidate is willing to act.

A candidate may submit a statement, not exceeding 200 words, outlining his or her experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

*I (full name), a member of the Institute, hereby appoint (full name), also a member of the Institute, to act for me as my proxy, and in my name do all things which I myself being present could do at the meeting of the Institute held on the 17th April 2004. Signed: ..... Witness:.... Date: .....*

Lunch will be provided in the form of sandwiches, cakes, biscuits, coffee and juice.

Council trusts there will be a quorum for the AGM by 10am. Lunch will be at 12 o'clock. It could be followed by up to two hours of discussion about Amateur Radio and the *National WIA* plus "Any Questions"

Listen to NewsWest for more information.

With thanks from the contributors:

**Neil VK6NE**
**Christine VK6ZLZ**

Amateur Radio
100% amateur radio!

# VK7 News

Justin Giles-Clark VK7TW

## Divisional News

The Divisional Annual General Meeting will be held in mid March 2004, 2-3 weeks prior to the WIA Federal Convention in Brisbane. The location is Launceston and will be hosted by the Northern Branch. Stay tuned to the weekly Divisional broadcast for more information. If you are thinking of getting more involved in the running of the Tasmanian Division or your local branch then this is the time to nominate!

## Branch Meetings

### North

The Northern Branch's Christmas BBQ was held at Myrtle Park on the 10 December and was attended by about 25 people. There were many guests and members who came along to enjoy the hospitality. Sterling Heights vineyard was in attendance with all those Christmas beverages, thanks Geoff!

### North West

A very enjoyable time was had by all who attended our final meeting for 2003. This meeting was made all the better, of course by the attendance of our NW ladies including our newest amateur Judy Kubank. The supper was a beauty - thanks ladies.

The Joan Fudge award for outstanding work for the branch in 2003 was easily won by Tony VK7AX. Tony has really brought the Northwest into focus on the amateur radio scene this year.

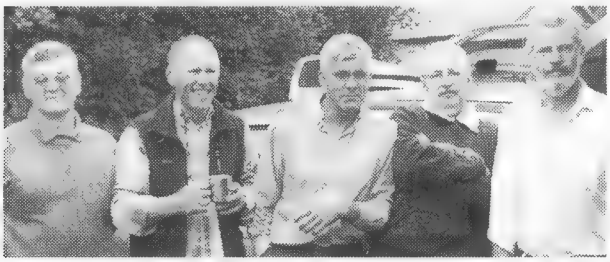
## South

The last meeting for the year was a quiet affair with a BYO BBQ on the Domain. After the BBQ we tried our hand at Amateur Radio Direction Finding. Thank to Richard VK7RO who supplied the fox and our intrepid band of DFers who raced off into the bush to try and locate the fox. The most successful technique seemed to be the body shielding method of direction finding without antenna and the handheld held close to the body.

## New Southern 6m repeater

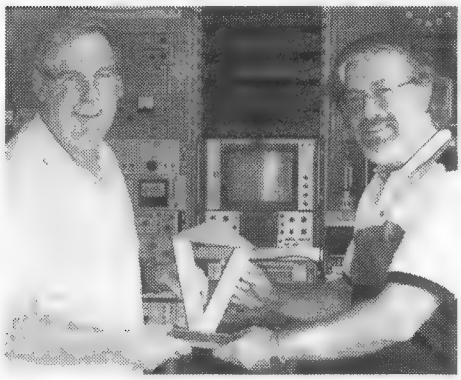
The new six metre repeater, VK7RAD, is now fully operational from the Southern Branch clubrooms on the Queen's Domain. It is using a Halo omnidirectional antenna for transmit on 53.825 MHz and a horizontal dipole for receive on 52.825 MHz. Thanks to Dave VK7DM and his helpers for getting this repeater on air.

73, Justin Giles-Clark VK7TW



Northern Branch Members -Danny VK7DA, Phil VK7JJ, Joe VK7JG, Kevin VK7KVN and our Divisional President, Phil VK7ZAX .

North West Branch Members - Peter VK7LCW, Steve VK7ZSJ, Ken VK7KH, John VK7KDR and Ron VK7RN



North West Branch's Joan Fudge Award recipient Tony VK7AX (left) being presented by NW Vice President, Steve VK7ZSJ

The author and Southern Branch Secretary, Dale VK7DG, cornering the fox!

Roger VK7XRN, in harness, installing the 6m repeater receiving dipole on the Queen's Domain Clubroom's tower.

# ALARA

**Christine Taylor VK5CTY**
vk5cty@vk5cty or geencee@picknowl.com.au

## Did you hear the news about the changes that happened on January 1st?

As from January 1st this year the ACA have declared that there will be no requirement to pass a CW exam. Also, as a consequence of this decision all those who held a Limited licence will have full HF privileges and all those who hold a Novice Limited licence will have full Novice privileges. Did you operate on Jan 1st? Did you give the new HF folk some contacts? I hope so. We have been looking forward to the time Australia would join with the other countries who have changed their licence conditions in the last year or so. Now let us show that we wanted the changes.

And for those of you who like CW. Go for it! There are plenty of operators who enjoy the special contacts that can only be made on CW. I do not think we will be surprised to find some of the new HF operators trying their hand at the more difficult techniques involved in CW operation.

## Response to those keys

Remember the photo of the morse keys published in the November issue of AR? We have had two responses to our request for information.

The first was from Gerry VK7DQ who recognised several of the keys from very earliest experiences. In 1938 Gerry attended the Radio Holland College for Wireless Operators, the only institution that trained WOs for the Dutch Mercantile Navy. It was here he first encountered the key on the left of the picture.

It was pretty heavy as it was made of solid brass. Some operators use a rounded knob like the one in the photo, others preferred a flat knob.

Gerry remembers how they were taught Morse Code. Can you visualise a class of about 20 17-18 year-olds reciting "down 2-3 up down up down 2-3 up down up down 2-3 up 2-3-4-5" to learn -.-.- ? That is the way they had to learn.

Gerry also remembers the second small key. This was used by the Royal Signals in England. It was used in conjunction with a telephone line, to be used when the line was too noisy. He said it was difficult to adjust and if you could do 10 wpm with it you were lucky.

The "speed keyer" on the right was the type used in the Netherlands after WW2 as everything with copper or lead in it had been removed by the Germans for use in their armament factories. The one in the picture is a little different to the one Gerry recalls but substantially the same. A good operator could send 35-40 wpm with one of those.

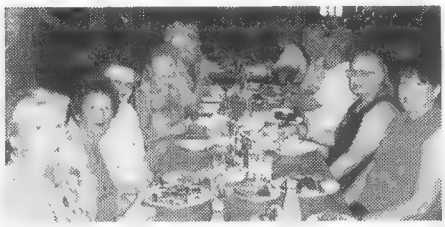
The other respondent is much younger, he has only been on air for 25 years or so, but Warren remembers a 'bug' key similar to the one on the right and the key in the middle of the picture from his Army Reserve experiences, and he thinks one the on the left is similar to what is commonly called a Post Office key.

Interesting, isn't it?

## Luncheons

Oh dear, I have got it wrong again about the VK6 lunches. They are held on the LAST THURSDAY of the month, not on a Friday, at all. Sorry girls.

Please do contact Poppy VK6YF or Norma VK6PNS if you are likely to be in Perth.



The November Perth Luncheon

**If you are in Adelaide contact me, Christine VK5CTY, or Meg VK5YG and in Melbourne, contact Bron VK3DYF or Gwen VK3DYL for more information.**

## The AHARS Buy and Sell

As usual the ALARA table was very busy selling pies, pasties and drinks to the 200+ souls who came in through the doors.

Jean VK5TSX was not able to be present due to other commitments but she had ably organised all the goodies for us. Shirley VK5JSH, Meg VK5YG and Marilyn VK3DMS were joined from time to time by Jenny VK5ANW, Tina VK5TMC and Faith VK5ZFC and Leslie XYL of Hans VK5YX.

We had some YLs come to the table and ask for a membership form and another has approached us since then so the numbers of YLs in ALARA continue to increase nicely.

At the Buy and Sell, L to R ChristineVK5CTY, Marilyn VK3DMS, Meg VK5YG, Leslie, and Shirley VK5JSH.

## Published!

**Deb VK5JT has had a book of poems published. Deb was historian for ALARA for several years. She produced a video tape of our History using many of the photographs of our early members. Congratulations Deb.**

## Geelong Radio and Electronics Society

The syllabus for 2003 meeting nights was a mixture of talks by club members, guest speakers, and outside visits. One club member Mr. Bill Collins talked on his experiences while stationed in Antarctica. Guest speaker David Learmonth VK3XLD gave an excellent demonstration of his portable microwave equipment. He talked at length on this subject and told of the many problems associated with microwave propagation. Another guest speaker demonstrated the use of the Linux operating system for home computers. Club member Neil Hancock VK3XNH assisted by Rex Ford VK3ARG gave a demonstration of APRS.

Visits to outside organisations were well attended. These included the projection room at the Reading Cinema and a demonstration of security products by Armour Security. A visit to the local astronomy club was most informative and gave us an insight into what amateur astronomers do.

On August 21 a dinner was held. This was to celebrate the Club's 40th birthday. It was pleasing to see many existing and past members attend.

The Club has again been actively involved in WICEN. In November the Geelong Touring Cycling Club held the "Otway Classic", a 160km ride which attracted over 200 entries This ride raises money for medical research. Club members manned the many checkpoints around the course. For the first time APRS was used to track the position of the official car and the ambulance. This test was most successful and showed the position of both vehicles through the rugged terrain of bushland and the Great Ocean Road.

Club meetings are held every Thursday evening at 2000 hrs local time. The meeting rooms are at the rear of the Belmont Youth Club in High St Belmont.

## Waverley Amateur Radio Society

**The Waverley Society, which has been established for 85 years, provides a meeting place located in the Eastern Suburbs of Sydney for hams and others interested in amateur radio.**

The society has its own well-equipped clubhouse located in the old scout hall in Vickery Avenue, Rose Bay. Evening meetings, usually with a lecture, are held on the third Wednesday of each month. The Club is also open on the first Saturday afternoon of the month when members and visitors can meet informally to operate the Club station, fix faulty gear, improve the facilities or just have a ragchew. Other regular activities include portable operation for the John Moyle and Lighthouse weekends, an annual auction in June, training and examinations for licences and provision of a scout radio station for JOTA.

Members have a wide range of radio-related interests including HF/DX operating, satellites, newer modes such as PSK31 or IRLP, equipment construction or repair, use of computers in ham radio, portable and mobile operation, collecting early equipment and are happy to share their expertise with others.

The Club is responsible for the Paddington 2m and 70cm repeaters, the latter having an IRLP facility. Apart from informal contact on these repeaters, the Club has an active group email list and a large and up-to-date website.

The website, set up in 1995 and updated at least monthly, contains contact information including location maps, a list of members with joining procedures, details of past and future activities with many photographs, information for hams visiting Sydney including useful radio frequencies, items for sale and wanted, as well as the Club's history in early photographs, QSL cards and interesting correspondence with the licensing authorities. This can be found at www.vk2bv.org.

The club welcomes overseas or local visitors and new members and can be contacted by email via the web site, through the President, Eric VK2VE, on (02) 9337 2909 or by post to PO Box 581, Vaucluse NSW 2030.

## The International YL Meet in Korea in 2004

The closing date for applications is now the end of February 2004, with payment due by the end of June 2004.

In August 2003 there were 104 attendees (59 from the 7 countries and 45 attendees from Korea). The YL Meeting Activities from 8-11 Oct 04 have not changed but there is a change to the Option program I and II as previously announced

### *Program Change*

**8 Oct-11 Oct**, YL Meeting, same.

**12 Oct**, we have Option Tour I (one day, Kyongju City, 1000 years old dynasty capital city)

**12-14 Oct**, Option II ( Kyongju city and Jeju island trip.)

The organisers would love to see more attendees at the Seoul YL 2004, from many countries. They have lots of things to show you and to introduce you to Korea. They are preparing much fun for you. All Korean YLs and OMs want to meet you!.

Decide now – Korea is not far off. If you are busy with your work, don't you need a vacation to recharge your batteries? Don't you need to enjoy the chance of sharing friendship again?

### *From Chae HL2KDW*

*YL 2004 Meeting period is good season for the tour, nice weather.*

*Safety is guaranteed (you can walk thru the night in the downtown, everywhere)*

*All the cost is very cheap (Seoul is a Paradise of Shopping)*

*Good Hotel accommodation.*

*Fantastic Jeju island tour chance!!*

*First of all, Warm hearted Korean YLs are waiting and welcome to you!*

*All of us, we are looking forward to seeing you.*

*73! and 88!*

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| | |
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| 6m 5 ele compt opt beam | $268 |
| 6m 7 ele compt opt beam boom — 60mm | $387 |
| 10 ele high performance 2m | $145 |
| 17 ele high performance 70cm | $125 |
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1-1 to 16-1 to 3kW

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**03 9773 3271**
**Mob: 0419 542 437**
Andy VK3IV

# Over to you

## ALARA's challenge

**In the JOTA para of the ALARA column of last month's AR you wanted to know, "Can you match this?" Not really but I am going to tell you about our JOTA activity, anyway! Not only in words but also in pictures!**

We have been helping Clunes 1st Guides group with JOTA for a little more that half of VK5KR's involvement with the Black Forest Scouts. There is no doubt that 30 years is a marvellous effort. Congratulations! This year we set up a portable station, VK2GGL, at the home of their leader, Helen Hargreaves. Her residence is situated approximately 30 kilometres west of Byron Bay and is surrounded by 4000 macadamia nutrees (a few can be seen in the pics). (The Dunoon area is reputed to be the macadamia nut capital of the world!)

The portable station consisted of a Kenwood, TS570s being fed into a windom antenna of 41 metres, each end hung over a nut tree about 25 feet above earth. This HF station was situated at the rear of the house with a clear view of Mount Warning. A Kenwood, TM241A, was set up at the front of the house and this was fed to a three element delta loop cut for 2 metres.

The whole set up was similar to JOTA, 2002, but fewer contacts were made this year on both HF and VHF. The reasons for this were that conditions on HF were not as good as last year and there were fewer VHF stations operating this time. However, the enjoyment of the group was just as great as the previous year.

Christine, do hope that this is of interest to you.

I do browse through your column in each 'Amateur Radio' and do appreciate that you do a very fine job of putting it together each month. Congratulations to you and keep up the good work!

88. Bill.

From left to right: Amelia (just about out of the picture), Nina, Catherine, Bethan and Louise.

The three element beam above the roof line.

The line-up from left to right: Warwick, VK2EDE, (second operator), Helen, Sally, Ruby, Phoebe, Nina, Maddie, Louise, Keisha, Catherine, Bethan, Ashlee, Amelia, and Jill.

# CONTEST CALENDAR 2004

| | | | | |
|---|---|---|---|---|
| Feb | 28-29 | NZ Jock White Memorial Field day | | |
| March | 20-21 | John Moyle Field Day | (CW SSB) | Feb |
| April | 17 | Australia Post Code Contest | | |
| April | 24 | Harry Angle Sprint | (CW SSB) | |
| May | 15 | QRP Day | (CW SSB) | |
| May | 22 | VK/trans-Tasman 80 m | (Phone) | |
| June | 5 | VK/trans-Tasman 80 m | (CW) | |
| June | ? | Wadda Cup | | |
| July | 17 | VK/trans-Tasman 160m | (CW Phone) | |
| July | 3 | ZL memorial 80 m | | |
| July | ? | Jack Files | | |

# Contest Notes

## VK/trans-Tasman Contests

The VK/trans-Tasman Contests have been expanded to include both 80 and 160 m.

*80 m Phone - SAT 22 May*

*80 m CW- SAT 05 June*

*160 m Phone and CW - SAT 17 July*

All of this up-dated information is available on the Contest web-site, at.http://home.iprimus.com.au/vktasman

## New160 metre contest

I have received permission from WIA (Fed), to replace the struggling "160 m Pacific DX Contest", in July, with a new Contest under my management.

The New Contest (160 m VK/ trans-Tasman Contest) will be on SAT 17th JULY '04, and will use the same Rules as the 80 m VK/ trans-Tasman Contest (held May - June).

A separate trophy and Certificates will be awarded in the 160 m Contest, with Phone and CW Categories on the same night.

Hopefully, with the new format and a lot more advertising, the new Contest will make a resurgence. I am also hoping that the old "Limited Licensees" will be eager to try something totally new for them, on 80 m and 160 m.

All the relevant info is on the Contest URL at: http://home.iprimus.com.au/vktasman

**73, Bruce Renn (VK3JWZ - Contest Manager)**

# John Moyle Field Day Contest 2004

Presented by Eric VK4NEF

***20 - 21 March, 2004***

***0100 UTC Sat - 0059 Sun***

**Once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day.**

If anyone wishes to contact me privately to discuss rules etc, my home phone number is 07 3390 5664, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to hearing you on air during the contest!

N.B. new Email address: jmfd2004@wia.org.au and or check out latest info at http://www.wia.org.au/contests/

## Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
2. The contest takes place on the 3rd full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 20-21 March 2004.
3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
4. Single operator portable entries shall consist of ONE choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
5. Multi-operator portable entries shall consist of ONE choice from each of the following (e.g. 24 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
6. Home and SWL single operator entries may be either 24 hour or 6 hour, All mode, All band.

## Scoring

7. Portable HF stations shall score 2 points per QSO.
8. Portable stations shall score the following on 50 MHz:
   a. 0-49 km, 2 points per QSO;
   b. 50-99 km, 10 points per QSO;
   c. 100-149 km 20 points per QSO;
   d. 150-199 km 30 points per QSO;
   e. 200-499 km 50 points per QSO;
   f. 500 km and greater, 2 points per QSO.
9. Portable stations shall score the following on 144 MHz and higher:
   a. 0 to 49 km, 2 points per QSO;
   b. 50 to 99 km, 10 points per QSO;
   c. 100 to 149 km, 20 points per QSO;
   d. 150 km and greater, 30 points per QSO.
10. For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.
11. Home stations shall score:
   a. Two points per QSO with each portable station.
   b. One point per QSO with other home stations.


| | |
|---|---|
| Icom 706MK2G | $1,299 |
| Yaesu FT100 | $1,050 |
| Icom 207H | $479 |
| Kenwood TS2000 | $2,599 |
| Icom 910H | $2,199 |
| Kenwood TMV7A | $699 |
| Yaesu FT8900R | $749 |
| Icom AT180 | $649 |

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## Log Submission

12. For each contact: UTC time, frequency, station worked, RST/serial numbers sent/received and claimed score. (VHF and above location of other station and distance.)

Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating "I hereby declare that this station was operated in accordance with the rules and spirit of the contest and that the contest manager's decision will be accepted as final". For multi-operator stations, the names and callsigns (legible) of all operators must be listed.

13. Paper logs may be posted to "John Moyle Contest Manager, 108 Queensport Road, Murarrie Qld 4172, Australia" (They will be forewarded onto the new contest manager). Alternatively, logs may be e-mailed jmfd2004@wia.org.au. The following formats are acceptable ASCII text or Office or Excel. Logs sent by disc or e-mail must include a summary sheet and declaration, but the operator's name (legible) is acceptable in lieu of a signature.

   Logs must be postmarked no later than 30 April 2004.

## Certificates and Trophy

14. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.
15. The Australian portable station, CW section, with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

## Disqualification

16. General WIA contest disqualification criteria, as published in Amateur Radio from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

## Definitions

17. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities, which is the normal location of any amateur station.
18. All equipment comprising the portable station must be located within an 800 m diameter circle.
19. A single operator station is where one person performs all operating, logging, and spotting functions.
20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.
21. A multioperator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
22. A multioperator station may use only one callsign during the contest.
23. Multioperator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
24. Multioperator stations must use a separate log for each band.
25. A station operated by a club, group, or organisation will be considered to be multioperator by default.
26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be

disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to 3 years.

28. Phone includes SSB, AM and FM.
29. CW includes CW, RTTY, and packet.
30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.
31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz. Note: On 50 MHz, the region below 50.150 has been declared a contest free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.
32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
33. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-0359: 04-0659: 07-0959: 10-1259: 13-1559: 16-1859: 19-2159: 22-0059 UTC. If you work a station at say 0359 UTC a repeat contact may be made after the start of a new block providing, they are not consecutive or are separated by five minutes, since the previous valid contact with that station on the same band and mode.
34. Stations must exchange ciphers comprising RS (T) plus a 3 digit number commencing at 001 and incrementing by one for each contact.
35. Portable stations shall add the letter "P" to their own cipher, eg.59001P.
36. Multioperator stations are to commence each band with 001.
37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
38. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

# Results of 2003 John Moyle Field Day Contest

## Portable, 6 Hour

| Stn. | S/M OP | Mode | Band | | |
|---|---|---|---|---|---|
| VK5SR | Multi-op | All Mode | All bands | 1906 | * |
| VK4WID | Multi-op | All Mode | All bands | 308 | * |
| VK3APC | Multi-op | All Mode | All bands | 158 | * |
| VK3FRC | Multi-op | Phone | All bands | 264 | * |
| VK1AI | Multi-op | All Mode | HF | 118 | * |
| VK2UQ | Single | CW | HF | 42 | * |
| VK2KUR | Single | Phone | All bands | 66 | * |
| VK5VH | Single | Phone | HF | 18 | * |
| VK5AVQ | Single | Phone | V-UHF | 644 | * |
| VK5ACE | Single | Phone | V-UHF | 280 | * |
| VK3VP | Single | Phone | V-UHF | 50 | * |

## Portable, 24 Hour

| Stn. | S/M OP | Mode | Band | | |
|---|---|---|---|---|---|
| VK4WIS | Multi-op | All Mode | All bands | 6576 | * |
| VK2SRC | Multi-op | All Mode | All bands | 5062 | * |
| VK3CNE | Multi-op | All Mode | All bands | 4732 | * |
| VK3AEF | Multi-op | All Mode | V-UHF | 4580 | * |
| VK3ER | Multi-op | Phone | All bands | 8370 | * |
| VK4BAR | Multi-op | Phone | All bands | 2858 | * |
| VK5BP | Multi-op | Phone | All bands | 2410 | * |
| VK3ANR | Multi-op | Phone | All bands | 2268 | |
| VK4CO | Multi-op | Phone | All bands | 754 | |
| VK2AFY | Multi-op | Phone | All bands | 96 | |
| VK5BAR | Multi-op | Phone | HF | 520 | * |
| VK4WIT | Multi-op | Phone | HF | 330 | * |
| VK3EGC | Multi-op | Phone | HF | 130 | * |
| VK3ATL | Multi-op | Phone | V-UHF | 3398 | * |
| VK5NJ | Single | CW | All bands | 296 | ** |
| VK3JS | Single | CW | All bands | 156 | * |
| VK4OE | Single | Phone | All bands | 2594 | * |
| VK3KG | Single | Phone | All bands | 2234 | * |
| VK5MX | Single | Phone | All bands | 272 | * |
| VK5UE | Single | Phone | All bands | 154 | |
| VK4EV | Single | Phone | HF | 110 | * |
| VK4BAF | Single | Phone | HF | 104 | * |
| VK3VTX | Single | Phone | V-UHF | 1408 | * |

** = Presidents Cup Winner VK5NJ

## HOME, 24 Hour

| Stn. | S/M OP | Mode | Band | | |
|---|---|---|---|---|---|
| VK2CZ | Home | All Mode | All bands | 315 | * |
| VK3DBQ | Home | All Mode | All bands | 294 | * |
| VK4IRW | Home | All Mode | All bands | 175 | * |
| VK2ASU | Home | All Mode | All bands | 77 | |
| VK2EA | Home | All Mode | All bands | 41 | |
| VK2IGS | Home | All Mode | All bands | 33 | |
| VK5ATQ | Home | All Mode | All bands | 57 | |
| VK4WIL | Multi-Op | All Mode | All bands | 255 | # |

# = Encouragement Award

## HOME, 6 Hour

| Stn. | S/M OP | Mode | Band | | |
|---|---|---|---|---|---|
| VK3KTO | Home | All Mode | All bands | 111 | * |
| VK4RF | Home | All Mode | All bands | 108 | * |
| VK2GR | Home | All Mode | All bands | 72 | * |
| VK2AKB | Home | All Mode | All bands | 64 | |
| VK3VD | Home | All Mode | All bands | 18 | |

## SWL, 24 Hour

| Stn. | S/M OP | Mode | Band | | |
|---|---|---|---|---|---|
| Roy Ford | SWL | All Mode | All bands | 109 | * |

## Check logs:

VK5RG
VK5AIM
VK4CHB

ar

## Education

**Ron Smith VK4AGS**
Federal Education Co-ordinator

# The test of time

**A new year has come. We can expect a different amateur radio after the end of this year. What will the coming year bring for education?**

When you raise the subject of amateur radio education in discussion somewhere thoughts and comments usually go to courses, resources, examinations, and of course the usual comments about pass and failure rates. Why do we think so much about what is really a nano-smidgen of what education should be in amateur radio?

Ever since its inception, most likely with Hertz and Marconi, amateur radio is about self-learning. The real education, the vast majority of education, is what those already with a license actually do to learn more about electronic communications technology, and its uses and applications. This is enshrined now, and always has been, in international policies about amateur radio. The more formal training and assessment systems are just the entry, a very small part of the real education scene.

There are two issues to consider at the start of another year. What self-training can each of us do this coming year and what applications can we use to provide service our community?

These are easy questions to ask and they are even easier to answer. There is just so much in the vast scope of amateur radio that we all should be able to self-educate for centuries, if the medical world could keep us alive that long.

So I take the opportunity to extend the very best wishes to all operators (existing and future), their families, and all readers a very successful 2004, and issue the challenge to take up the real meaning of education.

## Club News

### Adelaide Hills Amateur Radio Society

The Buy and Sell on November 23rd was the usual success. The weather was hot but the hall was well air-conditioned. The queue outside waited in the shade but was as long as ever.

Old friendships were renewed and new friendships were formed. Also, as usual, your 'junk' became my 'treasure'. New projects were decided upon and extra stages were added to old ones. Fun was had by all.

The November meeting was a construction night, again organised by Graham VK5ZFZ. This time everyone made a dummy load. Most of them were successfully completed but those people who cut off the 'tails' of the resistors too soon had to use extra solder to make some of the connections. No doubt some of the dummy loads are already in use.

### Lower Murray Radio Group Christmas Dinner

This was held at the Wellington Hotel, one of the older pubs in SA. It is right beside the river so the diners were able to watch the Wellington Ferry gliding back and forth. The reflections in the water were quite beautiful.

Fourteen people enjoyed a good meal and pleasant company.

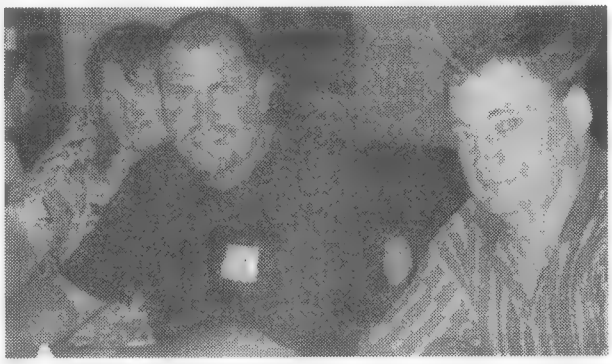
This group has increased in size considerably in recent years, which is satisfactory to those who kept in going in the lean years.

### Fleurieu Peninsular Radio Group

This used to be called the Southern Radio Group but to distinguish it from the South Coast ARC a new name has been adopted.

This group meets for a meal every three months but talks on the air most days. The numbers coming to these lunches is also on the increase. In general the club scene in VK5 is growing.

The Fleurieu Pensular Group, Garry VK5ZK and XYL Cecily, and Leslie XYL of Hans VK5YX, nearest the windows.



Some of the younger members of the Lower Murray Group. From l to r Chantelle, XYL of Brenton VK5JBJ, next to her, and Shane VK5NRV, who is responsible for the repeater 5RMB that is heard over so much of the southern area.

Alan Gibbs VK6PG
223 Crimea Street, NORANDA WA 6062
E-mail: vk6pg@tpg.com.au

# Part 33 – The Ultimate QRP Project

**Every licenced Radio Amateur should have a worthwhile home construction project on hand. These days, just being 'an appliance operator' is not exactly what the 'experimental' ethos of the licence is all about. Some readers will protest by suggesting that they don't have the facilities, or they can't be bothered anymore. This article might just tickle your fancy, especially with the increased interest in CW operating, the opportunity to use your computer wisely, and to take advantage of building a CW transceiver from a kit in just one evening. For readers on a budget, here's a cost-effective solution for getting on air and ideal for newcomers to our wonderful hobby of Amateur Radio.**

Figure 1

## Some Background

First published in QST April 2003, Dave Benson K1SWL described his well known RockMite QRP transceiver kit which has sold well over 1,000 kits worldwide - and the numbers are still growing very fast indeed. What's special about this kit:

1. PIC controlled.
2. Full QSK CW break-in.
3. No coil winding.
4. Receive crystal filter.
5. Switchable sidebands.
6. Inbuilt Iambic CW keyer.
7. Runs from a 9-volt battery.
8. Web site supported.
9. Up to 1-watt RF output.
10. 20m and 40m versions.
11. Silk screened, drilled PCB ... and it only costs $25:00 US!

## Applications

For newcomers to AR, this is a chance to get active on a very slim budget. Veterans can try QRP techniques just for fun and give the 'big rig' a rest. Portable fanatics can get cracking with a tiny rig that'll run off a single 9-volt battery. For those thinking of dabbling with QRP from their vehicles - then the cigarette lighter socket will be ideal. In the shack, the RockMite can act as a test bed, propagation tester, CW practice oscillator - AND a full-blown QRP transceiver with all the trimmings.

## Computer control

For serious operators, try connecting the RockMite (or any other QRP transceiver) to your computer logging and control system - add DigiPan for a waterfall display, and dovetail a Timewave DSP9 audio processor and you end up with a very powerful transceiver and operating system - especially if you also connect the CW control features including the computer macro's. But first, let's look at the RockMite kit in a little more detail.

## The RockMite TX/RX Kit

Small Wonder Labs offers the kit for sale on the Internet, and has facilities to purchase the kit on-line using PayPal for secure transactions. The kit comprises all the components, ICs and sockets, transistors, crystals, resistors, capacitors, RF chokes and a very nice silk-screened printed circuit board. You have to supply the diecast aluminium case (Jaycar HB-5062) plugs and sockets, volume control and a mini push switch. The antenna connection is a standard chassis mount BNC socket.

Once the kit has been purchased, and all the hardware acquired locally, download a copy of the Small Wonder Labs RockMite assembly manual from the HSC Web Site - Hot Links page. The document provides the circuit diagram and a description of operation. Tips and assembly tricks are also offered to help newcomers with home brewing, even hints on soldering techniques on how to install the surface mounted 8-pin front-end IC package.

The writer collected all the paperwork, including copies of the QST article, web page information and the helps manual adding them all to a display book. The plastic transparent pockets thus protect the pages from grubby fingers, and it makes for a fileable handbook for future use if needed once the job is finalised and the rig becomes operational.

## RockMite Specifications

In its basic form, the RockMite runs about 300mW output from a 2N2222 PA into 50-ohms. The kit comes in the 40m (7.040 MHz) or 20m versions for the same price. The writer chose the 20m version operating on 14.060 MHz. The receive front end uses a surface mount SA612AD acting as a mixer/oscillator. A 14.060 crystal acts as a receive filter offering a nice sharp peak on the QRP channel. The SMD chip is followed by a

LM1458N audio stage feeding headphones. On transmit, two 2N4401's feed a 2N2222 PA. A pre-programmed micro-controller PIC (12C508A-02/P) provides iambic keying with roughly 17 WPM default on switch on. CW speed can be varied using a miniature push switch. One long push outputs the character "S" in Morse code. By sending dots on the key, the speed is reduced. Conversely, using the dash key the speed can be increased. This might seem clumsy, but one tried it's a dream to use. The letter "S" used when programming is not sent to air. After about 2 seconds, the PIC drops back into the ready to send mode at the new programmed speed. Keyed side-tone at around 700 Hz is sent to the audio output, and transmit offset is handled by a vari-cap diode. A short push on the switch changes sidebands so you won't miss callers off channel. For QSK keying, the PIC switches a 2N7000 then the driver-PA. In addition, audio reduction via another 2N7000 semi-mutes the audio on transmit so you can hear your own outgoing CW comfortably. All up, the transceiver is a brilliant design that simply must be tried. Remember the whole kit only costs US $25:00 post paid into Australia!

For readers who would like the ultimate die-cast enclosure for your RockMite, American Morse Equipment (3) offers an especially milled case (US $20) designed exactly for the job, and it's even anodised blue for a superb durable finish. However, for around $10, the Jaycar product does just as well, and looks good if sprayed with an oil-based paint finish and oven baked for a very hard durable finish.

## Suggested modifications

Rich Arland K7SZ in QST for May 2003 suggests increasing the power output to almost 1-watt by replacing the 2N2222 with a 2SC799 transistor. The writer chose a 2N3053 (Jaycar ZT2299) and obtained 900mW continuous output with an added TO5 push-on heatsink (Altronics H0670) cut down to half size so it fits into the diecast case easily. The kit does not come with an audio volume control, but it can easily be added using a 1-Meg linear potentiometer (Altronics R2248) in place of R5 on the circuit diagram. Look for the 16mm small size pots otherwise it won't fit nicely into the Jaycar diecast case. Once the 1/4 inch spindle is cut down, and a nice little knob fitted, the transceiver becomes very desirable and easy to use.

Many other suggested modifications and feverish discussions can be found on the RockMite Internet reflector at:

rockmite@yahoogroups.com

It's amazing to see the various designs offered by RockMite users. Some use Altoids tins, tuna tins, empty computer mouse housings and many more. If you are considering the RockMite 40/20 then your own imagination can run wild. Some constructors have built in Morse keys and even 12-volt power supplies, others have 9-volt battery clips attached to the case. The choice is yours depending upon the intended use for your own creation.

For a shack power supply, the writer used a commonly available 1-amp DC plug pack from the junk box. However, remember to switch off the plug-pack when not in use. Other options include the 12-volt accessory terminals on the big rig PSU, or you can easily build a tiny PSU with a 7812 regulator, a bridge rectifier and appropriate smoothing etc. Use your imagination and you'll be well rewarded.

For portable/mobile applications, kit out a case/box with an assortment of leads, Morse key, headphones and roll-up antennas. The whole kit should fit into a nice sized floppy camera bag all ready for your next excursion. Remember to take some QSL cards, some paper and a pen to act as a temporary logbook. The tiny mobile logbook from the RSGB in the UK is an ideal solution for serious operators. For readers thinking about an international holiday, you'll love the RockMite option because it's light, easy to use and the whole kit fits into a "bum bag" - Great!

## Operating the RockMite

For newcomers to QRP, the antenna is the first consideration if DX is the objective. RAs with an existing 20-metre beam antenna, or operators with a healthy 40-metre vertical with plenty of ground radials are the lucky ones. However, an optimised dipole works well fed directly from the RockMite without an ATU or SWR meter. This is fine for casual portable operation, but in the shack at home, the big antennas will always win the day. The HF bands are busy enough so you'll need plenty of wire in the sky to winkle out those much wanted countries using QRP.

Above all, your own skill at listening and using CW will be foremost in being a successful QRP operator. 14.060 is the international QRP calling/working frequency, and with the RockMite you are rockbound on this channel. The receive bandwidth is wide enough to hear stations several kHz HF and LF of 14.060, and the crystal receive filter offers a nice peak at 700Hz. A short push on the switch reverses sidebands allowing a small change in frequency - and that's it. Watch for openings on the band and listen carefully for callers. Use your own skill to winkle out other stations, and do some calling in an effort to make contacts. It's best to follow the propagation charts looking for openings to your favourite country. For example, when open to the USA, good signals will be heard, but you'll need to use your experience as to when and how you call the other stations. Many times you may not be answered because the remote station is not digging deep listening for QRP DX stations, or your signal might be drowned in his local QRM. Persistence will win in the end. Once the DX location knows you are active, other stations will wait until you are ready to be called again.

A nice big fish can always be caught on a fine line. The same with QRP operation and only 300mW - not exactly high power but great fun when other stations call you back. The writer's first RockMite QSO was into Queensland with another QRP enthusiast who was amazed at my 0.3-watt output signal. 559 were exchanged between us with much delight.

The current world record between RockMites is between the USA and New Zealand. How about an Australian station taking out this record?

**To all those readers who have responded..., a big thank you. Without feedback, this series would not have been a success for over two years. The topics featured were, in fact, driven by the wider interest of our readers - which is the way things should be in a modern inter-active world.**

## Computer Control

Most readers would argue - What's all this QRP business got to do with computers anyway, and why feature the RockMite in Ham Shack Computers? Well, it's about bringing together all the techniques featured in this series of articles.

With a good computer logging program installed on your computer, and using the DSP capabilities of the sound card, your RockMite receiver becomes a very powerful and 'hot' little device. It gives you a unique advantage to be able to hear all the stations that your 'big rig' can hear. For readers with YPlog software installed, and the pre-programmed YPlog CW macro's configured for DXing on 20m. Add DigiPan and use the waterfall so you can actually SEE the DX calling, measure your receive bandwidth, and develop your own strategies in amongst the QRM seen on the waterfall.

## The DigiPan Waterfall

How did we ever manage before DigiPan came along? - one will never know. Figure 2 shows the true power of using the DigiPan waterfall as a spectrum analyser. Adding a Timewave DSP-9 audio processor between the RockMite and the input to the computer sound card turns your RockMite into a very powerful receiver. The lower portion of the display reveals the RockMite bandwidth from 300Hz - 2.5kHz. The marker sits on the 700Hz optimum sidetone frequency. This is the ideal setting for general listening ready to pounce on wanted stations. With the RockMite sideband switching, some 5kHz centred on 14.060 can easily be monitored. The middle of the display above shows the bandwidth reduction when the DSP9 is switched to CW, and the upper part of the waterfall shows the narrow bandwidth of 100Hz when the QRM becomes difficult. Add the noise reduction capabilities of the DSP9 and you have the ultimate QRP, computer controlled rig. The same techniques can be used with your 'big rig' to help gain a significant advantage - especially for serious contesters and DX chasers.

## Summary

This topic has covered an innovative approach to modern QRP kit building and operation using the power of DSP and computer exploitation. For only $25 US you can work the world with your RockMite, but all the skills learned from your AR experience will also come into play. It's the ultimate challenge for pro-active operators. In addition, this article brings together many of the topics covered in the Ham Shack Computers series. Above all, it's great fun to do, and the RockMite adds a new dimension to your own lifelong hobby of Amateur Radio.

## Epilogue

Sadly, this brings the Ham Shack Computers series to an end in this magazine. Hundreds of topics have been covered in the last two and one half years of publication. From building your own computer with parts found at the local tip, DOS, all the Windows packages through Linux have been described. Not to mention the best AR software currently available worldwide that opens up the world of modern AR communications. From packet radio, all the digital modes, spam, firewalls, virus protection, networking, and fine tuning your computer have all been featured. Lastly, web design, HTML, email and the Internet have been integrated together with the best options available for our readers. Every item of software and technique has been researched and tried by the writer before words had been committed into print. Highlights have included PSK31 - The Easy Way, Cleaning Windows, Computer Noise, Networking and Firewalls. Hundreds of readers have followed the series with supportive interest, and adopted much of the advice given. Adding the Ham Shack Computers Web Site (1) has allowed readers to download specific articles, especially featured software, and offered links to related subjects worldwide.

At times the writer's email inbox has filled daily with messages from interested readers asking for further advice, in trouble with their own computing systems or just mystified with the subject at hand and asking for more advice and help. All requests were acknowledged. Above all, many readers have saved hundreds of dollars on software, found nasty viruses, protected themselves from spam, coupled their rigs and computers together and dabbled in the new digi-modes with delight. To all those readers who have responded to the writer, a big thank you. Without feedback, this series would not have been a success for over two years. The topics featured were, in fact, driven by the wider interest of our readers - which is the way things should be in a modern inter-active world.

**Ham Tip No. 33:** Now is your chance to crack a new world distance record with your own RockMite. Has the writer done this yet? Well, there is a QSL card here in the shack from the US that clearly states a power level of 0.003-watt - but that's for our readers to guess!

(1) Ham Shack Computers Web: www2.tpg.com.au/users/vk6pg

(2) Dave Benson, K1SWL at: www.smallwonderlabs.com

(3) American Morse Equipment at: www.americanmorse.com

73, and have fun de Alan VK6PG SK

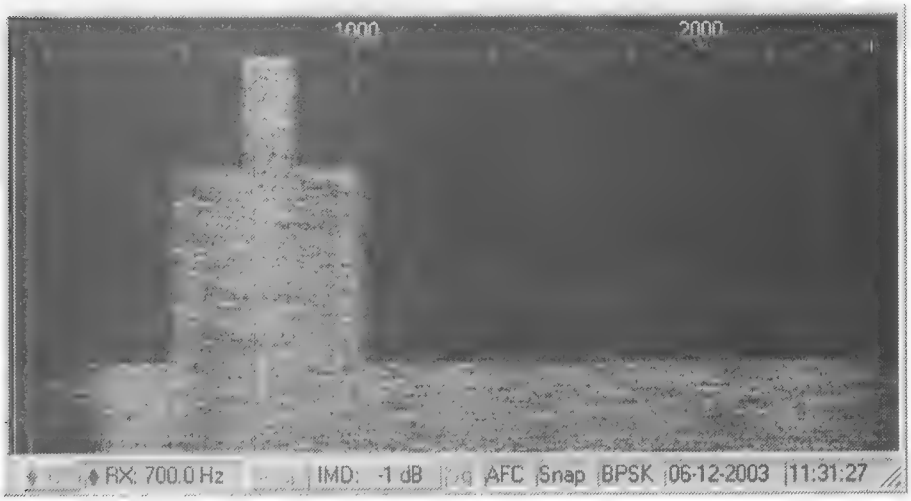



Figure 2

# VHF/UHF – An Expanding World

David Smith VK3HZ – vk3hz@wia.org.au
Leigh Rainbird VK2KRR –
vk2krr@telstra.com

## Weak signal

David Smith VK3HZ

**Summer is the season for good propagation on the VHF/UHF bands, and so far this summer has been spectacular, particularly between the East Coast and New Zealand.**

On 16/11 Ross VK2DVZ in Cundletown worked Nick ZL1IU, Steve ZL1TPH/p, Bob ZL3NE and Steve ZL1TWR on 2 m, ZL1IU on 70 cm and ZL1TPH/p on 23 cm (after Steve did the one hour round trip to home to get the 23 cm gear). Steve ZL1TPH/P also worked Neil VK2EI on 2 m.

On 20/11 in what was possibly a sporadic E opening, Guy VK2KU worked Nick ZL1IU on 2 m. Nothing heard on any higher bands.

On 18/12, Gordon VK2ZAB worked ZL1IU, ZL3TY, ZL3TJZ, ZL2TAL and ZL2IP on 2 m and ZL1IU on 70 cm. Guy VK2KU worked ZL1IU, ZL3TJZ, ZL2TAL and ZL3TY on 2 m. Remarkably, stations from the Bay of Islands in the far north of ZL down to Greymouth half way down the South Island were all workable at the same time.

On 19/12, Gordon worked ZL1SWW on 2 m and Ross VK2DVZ worked ZL1IU and ZL1TPH on 2 m and ZL1IU on 70 cm.

Then, on 30/12, one of the most extensive and long-lasting ducts in memory (at least, in the memories of those involved) commenced over the Tasman Sea. So many stations were worked at each end on all bands from 6 m to 23 cm that it is difficult to acknowledge them all.

Bob ZL3TY reports on 30/12, working VK2FZ, VK2JXA, VK2DXE, VK2TK, VK2AWD, VK2TS and VK2TDN on 2 m. On 31/12, he worked VK2FZ, VK2DXE, VK7MO (FSK441), VK2AWD, VK2DVZ, VK2TK, VK2ZAB, VK2KU, VK2JXA, VK2TG, VK2APG, VK2BHO, VK2AAS/p, VK2BZE, VK2ZXC, VK2FHN, VK2BA, VK2TS, VK2UBF, VK2FHN, VK4APG, VK4LC, VK2JKK, VK2EAH and VK2GKA on 2 m and VK2DVZ, VK2TK, VK2BZE and VK2FZ on 70 cm. He also worked John VK2TK using JT44 on 70 cm, setting a new Australian 70 cm Digital Record.

On 01/01, Gordon VK2ZAB reports working ZL2TAL, ZL2IP, ZL3TY, ZL1IU, ZL1TPH/p, ZL3TJZ, ZL1BK, ZL3UCP, ZL3ADH and ZL1AMO on 2 m and ZL3TY, ZL1IU, ZL1TPH/p and ZL3ADH on 70 cm. Signal levels varied between S2 and positively painful (ZL3TY). On the same day, Steve ZL1TPH reports working VK2ZAB, VK2KU, VK2DVZ, VK2DXE, VK2TK, VK4AR, VK4AML, VK4KZR, VK4LC, VK4QV, VK4OE and VK4DFE on 2 m and VK2ZAB, VK2KU and VK2DVZ on 70 cm and VK2DVZ on 23 cm. Guy VK2KU worked Ian ZL1AOX on 23 cm setting a new VK2 distance record.

On 02/01, Bob ZL3TY reports "just another average day", working 1xVK7, 13xVK2, 6xVK4 and 3xVK3, all on 2 m. Following his success on the previous day, Guy VK2KU teamed up with John VK2TK for a 23 cm portable foray into the Blue Mountains. Once on site, with a clear view east and excellent conditions, gremlins crept into the equipment causing a nerve-wracking 15 minute delay. However, once the earthing problem was sorted out, Guy and John worked Ian ZL1AOX (2270 km) and Harry ZL1BK/p (2277 km), again setting a new VK2 distance record.

On 03/01, Bob ZL3TY again worked a large number of VK2 stations, including Rod VK2TWR. As the morning progressed, signals crept steadily further west into VK3. Bob worked VK3EK, VK3DUT, VK3RS, VK3ZUX, VK3KAQ, VK3HZ, VK3ZYC, VK3KAI, VK3HY, VK3DMP and VK3FMD on 2 m and VK3EK on 70 cm. Robbie VK3EK also managed to work Ian ZL1AOX on 2 m and 70 cm. Andrew VK3KAQ worked Bob ZL3TY on 2 m on JT44 setting another new Australian record (but not for long). After a lull in conditions, Bob re-appeared and worked VK3HZ and VK3FMD on 2 m on JT44. He then worked VK3HZ, VK3KAQ and VK3FMD on 70 cm. The two contacts with David VK3HZ set new Australian digital records on 2 m and 70 cm (2275.5 km) and were the furthest west that the duct reached.

Finally, on 04/01, Gordon VK2ZAB reports working several ZL stations with signal levels dropping throughout the day. The duct was finally fading!

The duct to ZL had lasted 6 days and reached as far west as Melbourne, well inland into NSW and well into northern Queensland. That stations did not work across the Tasman on bands higher than 23 cm was probably only due to lack of operational equipment. Hopefully, we won't have to wait another 25 years for such an event.

On 08/01, 6 m displayed what was thought to be double-hop sporadic E. Ron VK3AFW reports hearing VK6JR working into ZL. Murray ZL3MH also reported VK6 to ZL contacts on 6 m. Denis VK3ZUX worked VK4FNQ, VK6HK, VK6ZKO and VK6DI and then the band went dead. Len VK3UH reports hearing both side of VK6 to ZL2 contacts. The ZL TV video carriers were very strong as was the Toowoomba sound carrier. John VK3ACA reported that there was strong Es ionisation over Sydney. Glen also reported MUF above 50 MHz. The propagation seemed to be more extensive than single hop, which is limited to about 2,200 km. Double hops do occur, but aren't anywhere near as common.

Barry VK3BJM has been busy working stations on 2 m and 70 cm while travelling from central Victoria to central Queensland and back in early December. Barry has a very good mobile setup in his vehicle with decent power and "big wheel" horizontally- polarised antennas on both bands – raising a few "looks" from passing traffic. Using a keyer to call CQ and taking advantage of aircraft enhancement, Barry managed contacts of up to 614 km on 2 m to Jim VK3II and 544 km on 70 cm to Gordon VK2ZAB –

all while mobile! A good effort by any measure.

Several new beacons have been brought into operation recently. John VK3KWA advises that a new 23 cm beacon - VK3RTC - is testing at present. Ed VK3BG built the beacon using a UHF base station TX followed by a varactor tripler and filter. It is located at Cobram (QF24) on 1296.534 running 10 W to an Alford slot. The current site is temporary (Daryl VK3KLN's QTH) and with any luck it may move to the top of a wheat silo.

Russell VK3ZQB reports that a new 3 cm beacon is running from the Mt Warrnambool repeater site in western Victoria (QF11iq). VK3RWL is on 10.368538 GHz running 2 W to a double-sided slotted waveguide giving 10 degree beams to the east and west. Russell built the beacon using a modified 12 GHz commercial exciter followed by an amplifier of his own design. The keyer uses a modified PIC-controlled CW identifier designed by his son Jeremy VK3TFH. Russell has endeavoured to make the beacon easy to build. He will replicate the design and make a beacon for Mt Gambier to be completed and on air before the end of the year. Ralph VK3WRE has already heard the beacon from as far away as Mt Tassie in Gippsland. Please email reports on the beacon to Russell at vk3zqb@dodo.com.au.

The VK beacon list has just been updated and is available from the WIA web site at www.wia.org.au/beacons/Beacons%20VHF-UHF%202004-01.pdf

If anyone is interested in undertaking the first-ever activation of Christmas Islands on 2 m EME, there might be an opportunity in Nov/Dec 2004. David VK2CZ is planning an HF trip at that time and has a large 2 m antenna that he could ship over. There are many EME stations keen to work VK9X. If you have a rig with some reasonable power (and maybe a WSJT/JT44 digital setup), and are keen to join David, contact him via email on k3hz@ieee.org.

# EME

**Doug McArthur VK3UM**

This is a summary and my log for the both weekends of the ARRL International EME contest. I ended up with a total of 48 QSOs X 27multipliers. This is some 10 fewer than last year with the multiplier count down by 3. My total operating time was only 7+ hours some 8 hours less than 2002. This was due to the lack of European window and one NA window when I could not operate due to gale force winds. On both chosen weekends I had Moon Set minutes after the contest period began. The second window was short and the Moon elevation was too low in Europe for many. Low elevations are not a problem for me, though I naturally suffer longer periods of ground noise.

Stations worked include: UA3PTW, JW/SM2BYA, OH2PO, RL3LE, SM3AKW, DJ9MB, DF3RU, DL9KR, VK4AFL, JL1ZCG, HB9Q, JH4JLV, HB9JAW, JR9NWC, K5GW, JA6AHB, N9AB, N2IQ, KL6M, K2UYH, KU4F, K4EME, JH0WJF, K1FO, K0RZ, VE6TA, JA9BOH, KJ7F, OE3JPC, DL7APV, UA9FAD, SM2CEW, PA2CHR, SM5IOT, SP6JLW, ON5OF, 0E5JFL, OK2BDQ, F2TU, G4RGK, OZ4MM, G3LTF, DJ3FI, DL1YMK, YU1EVY & G3LQR.

All contacts were completed without skeds, loggers, phone calls, spotting, digital modes etc. Just the good old fashioned and most enjoyable 5 finger digit CW!

Conditions for the second part were interesting. The NA window I would consider "normal" although I noticed Steve K1FO and Trevor VK4AFL were using polarisation offsets way off the norm (for me) with greatly diminished signals (at times) indicating significant but well defined shift angles. The EU window was certainly different from normal where, at times, there appeared a 90° shift with H being preferred where V is norm. Peter SM2CEW and Hannes OE5JFL and I tried all polarisations and basically found all were equal and ill defined! From about 2230-2330 on the 16th Nov there were short periods of almost total black out followed by fast fluctuating polarisation changes the likes of what I cannot previously remember experiencing. Libration also became predominate. These periods lasted for up to 5 minutes at a time and it was strange to hear some one calling on "your frequency" when you stood by. Conditions were coming and going so quickly as to confuse many of us! Well that's over for another year with a (sadly) seemingly lower level of activity. I hope next year will see us "down under" getting a better go.

# Digital modes

**Rex Moncur VK7MO**

## New Digital Records

Tropo openings to Bob ZL3TY produced new national digital records using JT44. On 1 Jan 2004 John, VK2TK, extended Guy VK2KU's 70 cm record by 7 km to around 2060 km. On 4 Jan 2004, Andrew VK3KAQ extended Rex VK7MO's 2 m digital record by 100 km to around 2246 km. This was extended shortly after to 2276.8 km by David, VK3HZ, followed by a contact with Charlie, VK3FMD, just 1 km less. David, VK3HZ, then worked Bob, ZL3TY on 70 cm on JT44 to extend the 70 cm record to 2275.5 km. Charlie, VK3FMD, and Andrew, VK3KAQ, also worked Bob, ZL3TY on 70 cm JT44. Congratulations to David, VK3HZ, who now holds both the national 2 metre and 70 cm digital records at 2275.5 km.

## New Digital Mode

Joe, K1JT, has released beta versions of a new digital mode called JT65 that is designed to provide 3 to 6 db improvement over JT44 on EME. It can be downloaded at: http://pulsar.princeton.edu/~joe/K1JT/

The new mode is highly constrained to transmit only the minimum information required to complete a QSO and uses a 60 second TX/RX cycle compared to 30 seconds on JT44. The first version did not do the averaging effectively and was far less tolerant of frequency instability than JT44. In the latest version the averaging works effectively and there is an option of using different frequency spreads that are more tolerant to frequency instability. The different frequency

spreads are called JT65a, b and c. JT65a is the most sensitive but requires the best frequency stability and it looks like JT65b is a good compromise and will become the standard mode.

A key advantage of JT65 compared to JT44 is that it uses pairs of tones to send the special messages OOO RORO, RRR and 73. These messages can be copied down to -30 dB with reference to 2.5 kHz passband and enable a contact to be completed very quickly once callsigns are exchanged. The use of these special messages make the new mode a clear winner on EME. On troposcatter paths the higher level of QSB means that JT44 with its faster cycle time can take advantage of QSB peaks and tests to date suggest that JT65 may have little advantage. In the long run a version of JT44 which includes the special messages of JT65 might be the optimum for troposcatter propagation.

Guy VK2KU has completed an easy contact with the new mode on 2 metre EME. Leigh VK2KRR and Bill VK5ACY have completed in normal conditions on two metre over a near 900 km path. Chas VK3BRZ and Rex VK7MO have been working over a 600 km path on 70 cm with good copy down to 20 watt.

From Craig VK6JJJ: WSJT activity is continuing in the West with VK6JJJ, VK6KHD and now Phil VK6ADF. So far six pings have been received in Perth by VK6KHD from VK6JJJ in Karratha, and five pings received in Karratha by VK6JJJ from VK6KHD in Perth. The sked is Saturday and Sunday 23:00 – 24:00 UTC, now on 145.140 USB and any new stations are most welcome. Hopefully a QSO will be completed soon. (Late update: Phil and Craig have now successfully completed an FSK441 QSO – 922 km).

# 2 m and 70 cm FM DX

**Leigh Rainbird VK2KRR**

Happy New Year to all and hope 2004 brings some interesting openings to you in the months to come.

In this 2 and 70 FM DX edition, we will be covering a bumper two months of exciting DX activity that occurred during the months of November and December 2003. While there were quite a few more openings than space will allow here, I have listed some of the more interesting. Enjoy!

November saw the transformation of the weather conditions to allow summer type duct conditions to return to the southern areas of Australia. In contrast, it would appear that the VK4 boys are now not enjoying quite as good propagation in comparison to the previous few months.

It would also appear there have only been around 4 instances of major conditions with elevated ducts over the whole two months in the south, but there have been quite a few days of extended local conditions that I know of and only around one decent full High pressure cell has made it through into the Great Australian Bight, the rest have all been partial areas of lower pressure, but mostly there has been an east west track of High pressure or multiple linked cell centres which can be a good thing.

In the South East, the first major summer duct was noted in the morning of the 7th of November. I think most operators still had the winter blues, as not too many operators surfaced. A few simplex contacts were made, some new repeaters worked.

Working simplex on 2 & 70 were Terry VK3ATS in Mildura into Leigh VK2KRR near Wagga @ 466 km. Terry also worked the Wagga 2 m repeater. Brian VK5ZMB (now VK5UBC) at Gawler also worked VK2KRR on 2 m @ 764 km. Brian had a comparable signal to Terry, around S9+10dB and we had a QSO for about half an hour.

Both 2 m and 70 cm repeaters had good signals in the south and the west from here. Some of the harder to get repeaters were dug out, such as Ballarat 438.475, Willunga Hill 146.675 VK5RSV and a new one for me was Port Lincoln 438.225 VK5RPL @ 1026 km. On low power tests, Crafers VK5RAD was workable on just 2.5 watts @ 764 km.

The 12th was a bit more major and there were a few more people aware of the good conditions by this stage. Another early morning starter, around 2.30 am, produced some good results. From here, the opening covered most of the South East area, excluding areas west and north of Adelaide.

A report received from Brian VK5UBC (ex VK5ZMB) about the opening, indicated very good conditions from the Adelaide area across to the east and southeast. Brian reports - This morning was a beauty. Turned on at 6.30 am and I could hear repeaters from all across Victoria. Highlights were working 3NAJ & 3YDK via Mt Baw Baw @ 750 km, and working 3XDJ/m simplex near Wangaratta @ 698 km. Also worked Bill 3LY at Nhill simplex as well as thru several repeaters. Brian is only running 20 W into an 8 element yagi.

Another station that did amazingly well was David VK3XDJ. David was stationary mobile near Wangaratta in Victoria and was using a vertical omni antenna to work as far as the Crafers 5RAD repeaters in Adelaide on both 2 m & 70 cm. This is around 690 km for David. I believe David was also able to work the Mt Gambier 70 cm repeater @ 513 km. David also worked Brian VK5UBC on simplex. Well done also to Bruce VK3AYM, north of Albury, being able to make it to Murray Bridge and Crafers in Adelaide on 2 m, being 725 and 753 km respectively.

Another operator, stationary mobile and in a rare radio location was Wayne VK2PDW. Wayne was at Hay in Western NSW. Wayne was using a vertical omni antenna and reported hearing signals deep into VK3 towards Melbourne.

George VK3HV just happened to be in the right place at the right time. George was acting as second operator at VK3BG's QTH near Yarrawonga at the time and claims to have filled a number of pages in his logbook within a few days! As far as I can recall, George worked up around Wagga NSW and all around the western half of Victoria, and had some great fun in the process.

VK2KRR was able to work simplex on 2 m to Tony VK5ZAI in Kingston @ 672 km and also to VK3LY and VK3AEF in Nhill. Repeaters around Adelaide and the SE VK5 areas were worked, as well as many in VK3. Some of the more distant examples on 2m are, Mt Gambier, Kingston, Barossa Valley and Bumbunga Hill @ 833km. On 70 cm, Summertown, Barossa Valley and Mt Terrible @ 778 km.

During the evening on the same day at about 1200 UTC, signals emerged from Frank VK6DM in Albany. Frank made it to the Crafers Adelaide repeater 147.000, a distance of 1892 km. Frank also was

able to get into Houghton, another Adelaide repeater on 146.850, a distance of 1900km. Rob VK5MM was doing the duty of providing Frank with signal reports into both devices. Nice to get some signals from VK6 to the east, well done Frank.

On Sunday the 16th, very early in the morning, some interesting contacts were made in the South East. This time conditions did extend past Adelaide to the west and north. Not a great deal of activity noted, but for those who were around, some astonishing simplex contacts were available. These contacts being simplex from VK2KRR to John VK5ZTY at Eudunda, north of Adelaide. John's signal here was 5/3 @ 741 km. John was running with an 8 element yagi and only 3 watt! At the same time, Rob VK5MM at Mt Barker was a 5/3 signal @ 747 km. Rob was using a vertical omni antenna at roof height and down to 5 watts! Next up, Bill VK5ACY on Kangaroo Island, SA, was worked. Bill had a good 5/9 signal over the 893 km path using a 5 element. Over a slightly shorter distance, Bob VK3HBJ, near the Melbourne Ford Factory was also worked with a 5/5 signal here.

It was unfortunate that there were not more operators active on simplex for this opening, as conditions were quite extensive and strong as shown by the following repeaters. Barossa Valley 5RBV on both 2 & 70 was full scale @ 741 km, Port Pirie 5RMN was +20 dB @ 867 km; Port Lincoln 5RAC was +20 dB @ 1019 km; Central North 5RLH was +50 dB @ 833 km; Willunga Hill 5RSV was S9 @ 771 km; Berri 5RLD was +20 dB @ 601 km; Cowell 5REP was +60 dB @ 961 km; and Port Augusta 5RAE was +20 dB @ 913 km. Most of these could easily be accessed with minimal power down to 2.5 watt from here.

Being licensed for only two weeks at the time, Dion VK7YBI gave everyone a shake up when he was able to make a number of brilliant 2 m contacts from Burnie to the Adelaide area. Dion's contacts began late on Thursday night, the 20th of November, when he was able to make it through to the legendary VK5RMB Murray Bridge repeater on 146.875. This distance is 913 km for Dion who subsequently worked VK5HKS on the repeater. Around an hour later Dion made it to the Crafers 5RAD repeater on 147.000 @ 925 km where VK5UBC (ex VK5ZMB), VK5MM and VK5CQ were eager to reply back to the distant signal. Dion is running a 6 element yagi. Also making it through from Tassie was Paul VK7BBW in Launceston. Dion reports that Paul was making it through to VK5 at the same time, but Paul's signal dropped out an hour before Dion lost it. Since then Dion has made numerous contacts with the mainland and is planning on adding a second yagi to the tower to help with his DX quest and is also considering 70 cm.

In the first week of December there were some great conditions in the southeast, from VK7 to the mainland and around VK5. Brian VK5UBC had some great luck and repaid the favour to the VK7's by working back into the Tasmanian area from his portable QTH at Corny Point, southern Yorke Peninsula SA. On the 3rd, Brian worked Bill VK3LY simplex at Nhill with a 5/5 signal @ 450 km. Also VK3VTX via the Ararat repeater, S7 @ 600 km. Brian goes on to report - Much to my surprise at around 9.00am I started to hear Mt Barrow 7RAA in northern Tasmania, which is 1152 km. I heard VK7's talking on the repeater and then 7UK calling, but I could not get in. I worked Dion 7YBI via Crafers 5RAD repeater at around 11.00 am, which is 925 km for Dion.

The SE VK5 and 7RAA repeaters kept coming in and out all day, and around 9.00 pm the SE repeaters were all S9 and I was hearing 7RAA and Mt Duncan 7RMD @ 1047 km. VK3's were working VK7's on the Tasmanian repeaters and I was able to eventually break in and work VK7LCW, VK7YBI & VK3ARC via 7RAA. Peter 7LCW reported he could hear me on reverse and we had a simplex contact starting 10.10 pm for about 20 min's. Signals were only S1 to 2 but readable 5. My 1st VK7 and a distance of 1044 km. Brian is running two 5 element yagis and 20 watt from his portable QTH.

On the 23rd of December, Mike VK4MIK reports that conditions were slightly better. Mike worked simplex to John VK4FNQ in Charters towers @ 310 km. In the morning on the 24th Mike also reports being able to work the following more distant repeaters – Mackay 4RMK @ 559 km, Hodgson Range 4RHR @ 644 km and Springsure 4RSP @ 793 km. Well done to Mike for cracking the Springsure repeater, and also to Felix VK4FUQ who I believe also worked the same repeater, not a real easy path across all the mountain ranges.

Saving the best till last, Boxing Day, 26th December 2003 saw an extremely rare path that stretched east west across Australia's south. The duct became workable here at about 1600 Z, in the usual way. Around 1900 Z things started to move along with strong signals. Brian VK5ZMB was worked here simplex 4/3. Brian was also noted making a contact into the Canberra 146.950 repeater, noisy, but a rare path and over 900 km to the repeater, Brian was working VK1NPW.

At 2029 Z, VK2KRR was hearing the Port Lincoln 70 cm repeater at a great 5/9 signal @ 1026 km. Next thing I know, at 2035 Z, a strange signal is copied on 147.250. Very weak copy but this ends up being the Boddington repeater VK6RMS on Mt Saddleback, 126 km SE of Perth and a 2817 km signal path to VK2KRR. Being very early morning in the Perth area, it was not until 2144 Z that Frank VK6ZGU at Wagin was confirmed as replying to VK2KRR's calls. By now the signal was S7 from near Perth and Brian VK5UBC was able to call in and was also eventually confirmed by Frank. The distance for Brian was an amazing 2062 km! Brian is 40 km north of Adelaide. Not long after hearing all the commotion on their normally quiet local repeater, Glen VK6IQ at Wandina around 45 km NE of Perth called in, Glen is approx 200 km north of the repeater. Glen thoughtfully went to notify any other stations of the opening, but could only find one, which was Doug VK6TDC in Perth. VK5UBC and VK2KRR both checked for VK6 direct signals on reverse, but nothing was heard. A number of other VK6 repeaters were said to have been heard, but none could be confirmed.

The opening to the Boddington repeater lasted around 3 hours, and was last heard at approx 2340 Z. It should also be noted that the Boddington repeater is the highest repeater in VK6 at 590 m asl. Thanks must go to the operators around the Mt Macedon repeater in Melbourne for realizing the significance of this contact and standing by while this opening was running, as Macedon is on the same frequency as Boddington.

**ar**

# HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

**Febuary 2004**
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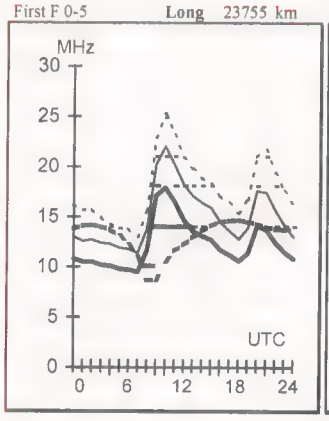
**Legend**

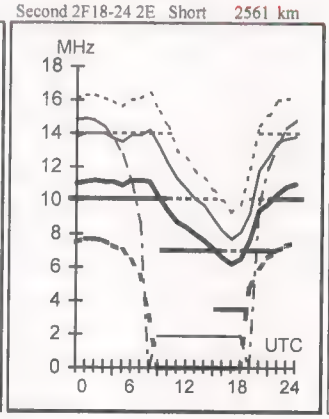
Frequency scale: UD, E-MUF, OWF, F-MUF, ALF, >10%, >50%, >90%

Time Scale

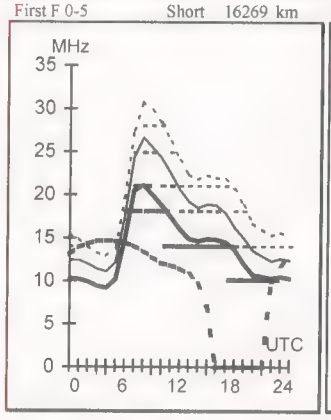
**Adelaide-London** 132
First F 0-5 Long 23755 km



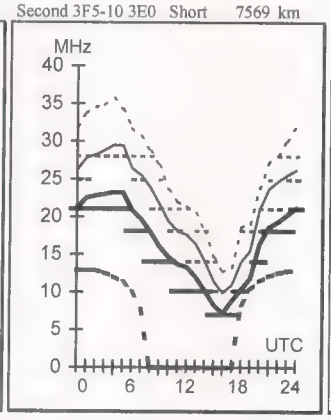

**Brisbane-Dunedin** 148
Second 2F18-24 2E Short 2561 km



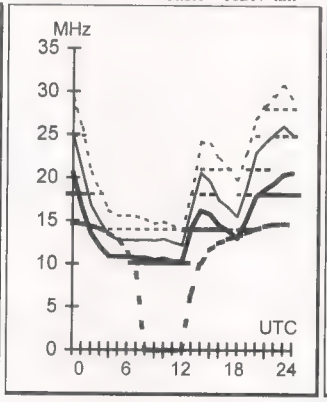

**Adelaide-London** 312
First F 0-5 Short 16269 km



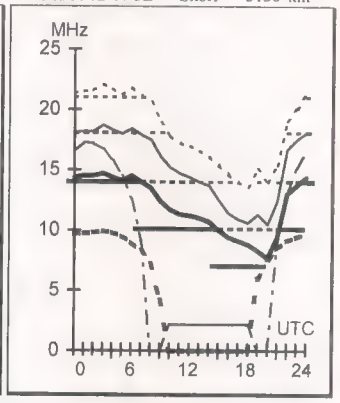

**Brisbane-Honolulu** 49
Second 3F5-10 3E0 Short 7569 km



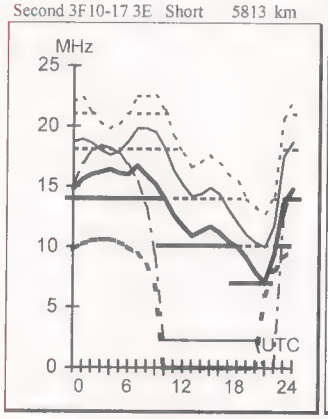

**Canberra-New York** 68
First F 0-5 Short 16217 km



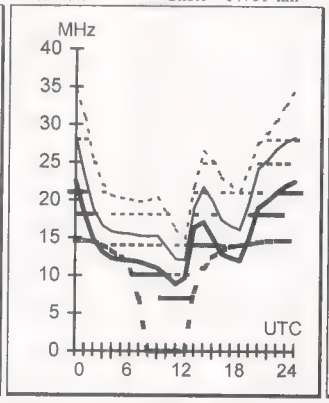

**Darwin-Auckland** 130
Second 3F12-17 3E Short 5136 km



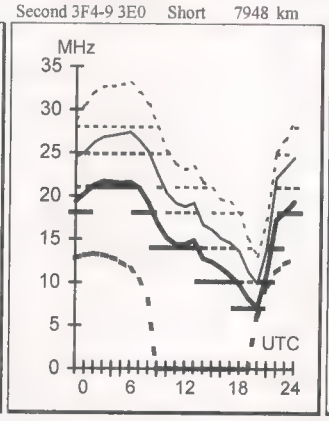

**Adelaide-Manila** 338
Second 3F10-17 3E Short 5813 km



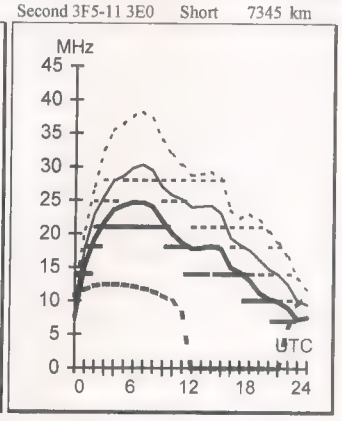

**Brisbane-Miami** 79
First F 0-5 Short 14761 km



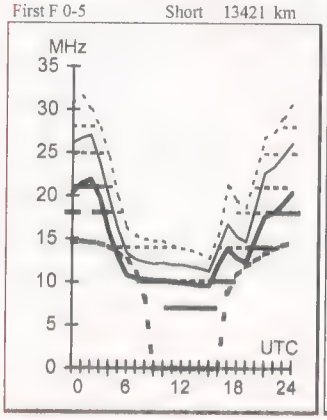

**Canberra-Tokyo** 352
Second 3F4-9 3E0 Short 7948 km



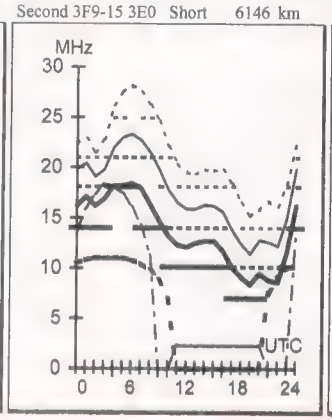

**Darwin-New Delhi** 309
Second 3F5-11 3E0 Short 7345 km



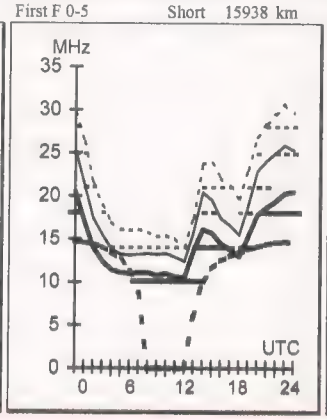

**Adelaide-Vancouver** 49
First F 0-5 Short 13421 km



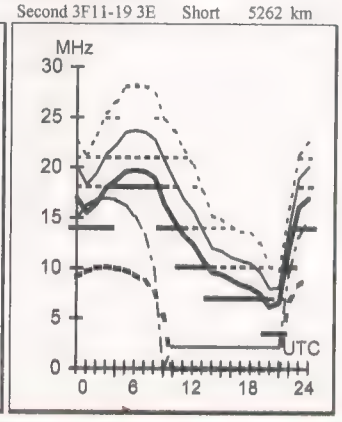

**Brisbane-Singapore** 293
Second 3F9-15 3E0 Short 6146 km



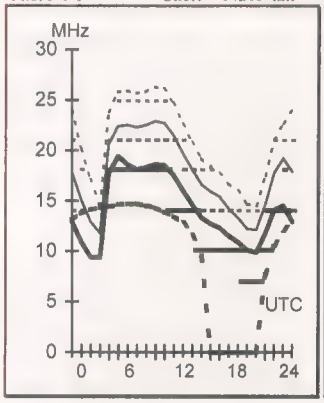

**Canberra-Washington** 70
First F 0-5 Short 15938 km



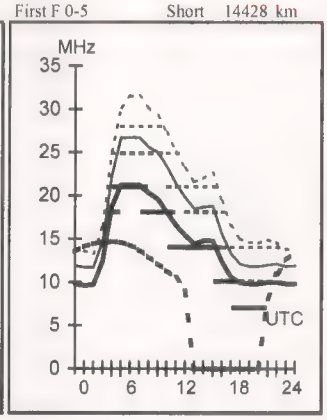

**Darwin-Osaka** 5
Second 3F11-19 3E Short 5262 km



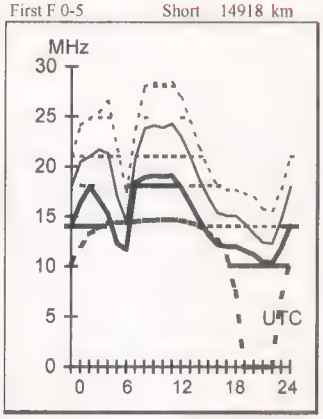
**Hobart-Cairo** 278
First F 0-5 Short 14263 km



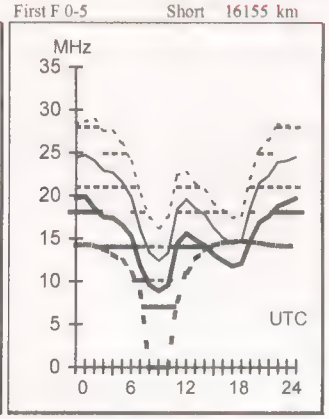

**Melbourne-Moscow** 316
First F 0-5 Short 14428 km



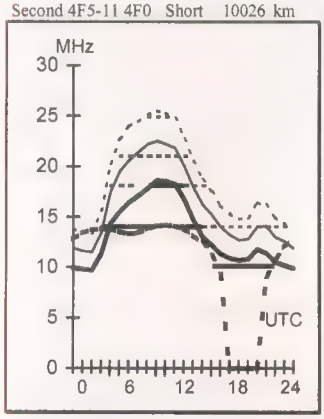

**Perth-Dakar** 259
First F 0-5 Short 14918 km



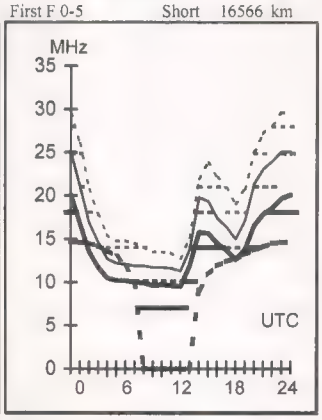

**Sydney-Barbados** 119
First F 0-5 Short 16155 km



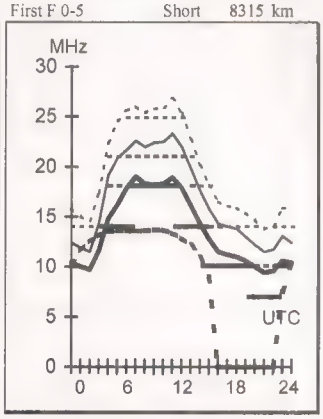

**Hobart-Capetown** 220
Second 4F5-11 4F0 Short 10026 km



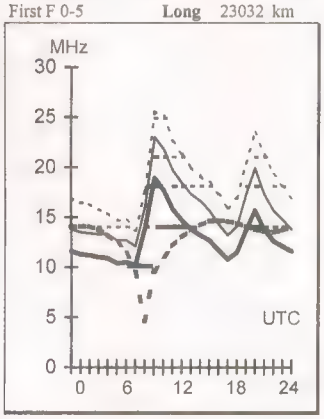

**Melbourne-Ottawa** 63
First F 0-5 Short 16566 km



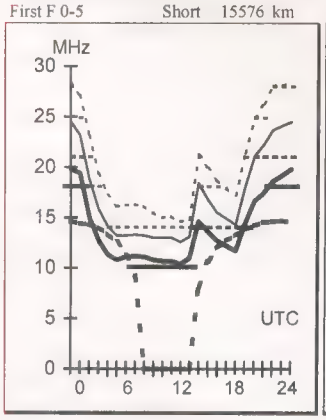

**Perth-Johannesburg** 248
First F 0-5 Short 8315 km



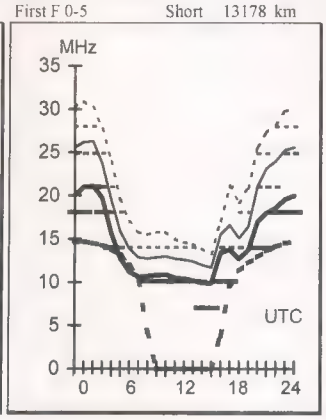

**Sydney-London** 139
First F 0-5 Long 23032 km



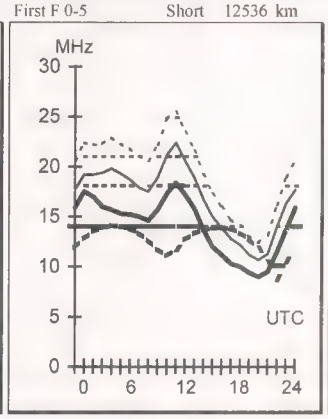

**Hobart-Chicago** 72
First F 0-5 Short 15576 km



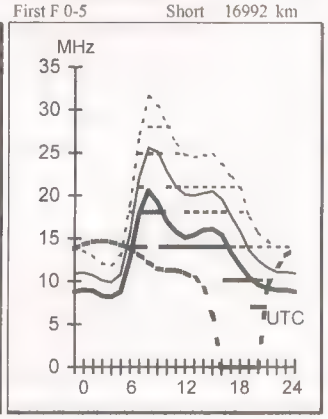

**Melbourne-Seattle** 50
First F 0-5 Short 13178 km



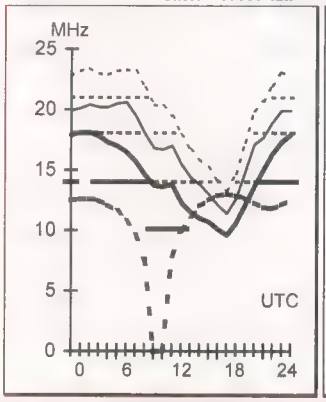

**Perth-Montevideo** 187
First F 0-5 Short 12536 km



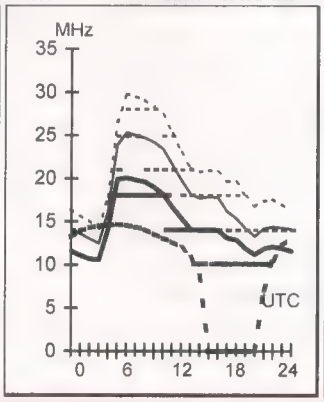

**Sydney-London** 319
First F 0-5 Short 16992 km



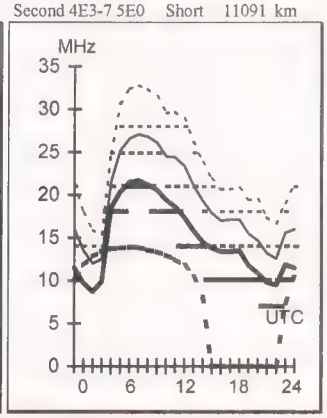

**Hobart-Santiago** 149
First F 0-5 Short 10688 km



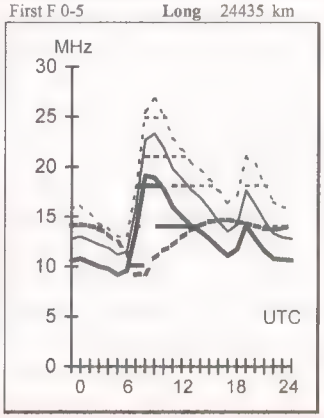

**Melbourne-Sofia** 296
First F 0-5 Short 15132 km




**Perth-Tel Aviv** 302
Second 4E3-7 5E0 Short 11091 km




**Sydney-Warsaw** 133
First F 0-5 Long 24435 km



# AMSAT

Bill Magnusson VK3JT

## AMSAT-VK net via Echolink

On Sunday 6th December 2003 the first "dress rehearsal" of the AMSAT-VK Echolink net was successfully conducted by Graham VK5AGR. As planned several amateur radio satellite operators connected to the AMSAT-NA conference server via Echolink. Graham welcomed everyone and then initiated a 'round-table' discussion, which ran to nearly two hours, such was the interest. Stations from VK2/3/5 and 8 joined in and we had calls from America, Canada and Germany during the net. Several items associated with the operation of Echolink itself were discussed and it was generally agreed that the system had merit and warranted further tests. It must be remembered that in the early stages the nets may not be quite regular. I therefore suggest that if you are interested in joining or commenting on this idea it would be beneficial to contact Graham VK5AGR at his above e-mail address and ask to be included on the AMSAT-VK mail-out list. You can then expect to be notified of any net operations or changes of plans in time to take part. The use of Echolink in conjunction with HF and VHF/UHF linking has great possibilities for the establishment of a regular, truly Australia-wide net, something we have never been able to achieve before.

### The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

### AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's email address is:
vk5agr@amsat.org

## AO-40 telemetry for all

**Chris VK6KCH recently posted a bulletin board message regarding "AO-40 Streaming Telemetry" .... 'catch-your-eye' title eh?**

Those operators interested in capturing telemetry data from AO-40 or any other satellite for that matter will have realised you just can't jump up and do it. You need to get a few things organised first. In the case of AO-40 you need to be able to receive the 13cm middle beacon signal with a good signal/noise ratio - around 15-20 dB and for this you need a better-than-average receive set-up. Then you need a demodulator, either sound-card or hardware and finally you need some sort of decoding software to display the engineering data on your screen. Those of us who've been in the business for some time will either have, or be able to get together most of the above requirements and get down to business. But it can represent quite a tall order for the newcomer. Add to this the fact that the satellite is not always in your sky or as is often the case, squint angles are less than optimal and the whole process can be daunting. Chris VK6KCH brought this to the fore with his post to the BB in December 2003. There is an alternative. Don't run away with the idea that it's an 'easy' alternative but it means that just about everyone can join in the fun of snooping on the behind-the-scenes engineering stuff of satellite operations. For some time now a number of well equipped stations around the world have been sending 'real-time' raw telemetry data to a web server at the Goddard Space Flight Centre for processing and re-distribution via the Internet. This system is known as "streaming" and it has a number of advantages. Pretty well all the time someone somewhere, with a good AO-40 receive set-up will be in the footprint of the satellite, so the stream of data has a good chance of being continuous if enough station operators are willing to participate. The new FEC format of the telemetry means that the displayed engineering data is highly reliable. These two things alone mean that good telemetry is now available to anyone with an Internet connection rather than being solely the province of those with better than average 2.4 GHz receive equipment. The appropriate software is easily obtainable from the site mentioned below. Here is the essential part of Chris's posting.

"Thanks to Gunther, W8GSM, I now have a copy of UDPTelem.exe, and I am currently streaming AO-40 telemetry to Goddard. If you want to see the telemetry as it arrives, then here's what to do:"

1. Obtain a copy of Stacey Mills' P3T program (v2.08) from http://www.keplerian.com/
2. Once you have installed and configured P3T, start the program and select the "Menu | Internet" screen.
3. Click on "Client (data in)"
4. Enter "128.183.143.104" in the "Host TCP/IP Address:" field.
5. Leave the "Port:" field at the default of 1024

(You need an open Internet connection for the remaining steps).

6. Press the "Connect" button. You should see a message at the bottom of the window similar to "Connect to: garc9.gsfc.nasa.gov"
7. From the main P3T window, select the "Status" option; you should now see values update in near real-time as each block comes in via the Goddard telemetry server.....73 Chris VK6KCH".

I can vouch for these instructions having followed them and got it working easily and quickly. While you are on Stacey's site you may wish to download his whole-of-orbit-data program which adds yet another dimension to the telemetry business.

## While we're on the subject.....

There is often confusion regarding the functioning of some of the telemetry software mentioned from time to time. The two main programs that I have settled on are Stacey Mills' P3T program and Moe Wheatley's AO40rcv. They have many similarities but serve differing purposes. To appreciate the differences it's essential to be aware of the two quite separate functions, demodulating and decoding. These two functions were separate for many years due to limitations in home PCs, but that is changing. Often they are spoken about as if interchangeable but that's not so. A *demodulator*, as its name suggests, demodulates the signal. That is, whether PSK, FSK, AFSK, AM, FM or SSB, a it separates the modulation from the 'carrier'. In a receiver we call that 'detecting'. Telemetry demodulators can be either hardware e.g. James Miller's ubiquitous demodulator boards - or software e.g. one of the many sound-card based demodulator programs now available. These use the D to A converter in the computer's sound card.

*Decoding* programs are designed to apply mathematical formulae to the already demodulated raw data and display the resulting engineering values in a meaningful way, usually in columns, in panels or in graphical form. P3T is a decoder. It needs to be presented with demodulated data to do its calculations. It is very versatile. The data can be raw data from your hardware or software demodulator, receiving directly from the satellite, or it can be drawn from either a pre-recorded file or, as in the above article, via the Internet from a source such as Goddard.

AO40rcv, to a certain extent combines the two functions. It is an excellent "sound-card" demodulator with FFT 'waterfall' display and a measure of in-built decode and display functions. It is a very useful program and one may ask, 'Why use the hardware model to do the same job?'. Good question - but at present the hardware demodulator does a more robust job of extracting the data from the original signal, particularly in the presence of noise. This may not always continue to be the case. Moe Wheatley's program has been developed over a period of time to compete very well and it may be that in the future the sound-card programs will do away with the need for hardware demodulators. But don't throw away that old G3RUH demodulator board just yet.

## Reception of Mars and Saturn "flotilla" by amateurs

James Miller G3RUH reports that Charles Suckling G3WDG has received signals from the Mars-Express mission using quite modest equipment.

This is no mean feat. It requires an EME-class station retuned to the frequency of the European Space Agency's Mars Express satellite to hear the very weak signals. In November 2003 the AMSAT-DL team at Bocham, Germany used a 20 metre dish to receive the signals from Mars Express and Mars Odyssey in a test of the communication budget for the planned P5A Mars mission. The Bocham dish will form part of the ground control station of the P5A project due for launch in 2007. In August 2003, VK3UM had received the 435.1 MHz test signal from Mars Global Surveyor during the Mars relay tests using his well known EME station.

Now, the 20 metre diameter Bocham dish is a serious instrument and by comparison Charles' 3 metre EME dish is tiny. Charles reported: "Just to let you know that this evening (Dec 9) I successfully heard Mars Express on X-Band with the 3m dish here. System NF is about 1dB, and I used your (G3RUH) S-Band 2.25 turn helix scaled to 8.4GHz as the feed (LHCP feed). Signals seemed very consistent for about 2 hours. Signal level was very approx 0dB S/N in 2.5 kHz. Moon noise was about 1.05dB, compared to my normal 1.8dB on 10.368 GHz (EME) with the Andrews feed. I have not yet optimised the feed position or anything - just a quick 'throw together'. Will check sun noise tomorrow and see how it compared to 10.368 GHz. Signal was not too difficult to find. It took about 10 mins of searching the RX +/- 100 kHz and el/az tweaks".

The original posting included an audio recording and a spectrum scope picture showing a surprisingly prominent signal on both the 'waterfall' and spectrum displays. Charles' success in this experiment has proved that the reception of weak signals from the vicinity of Mars is possible for amateurs. Other reports have shown that Charles is not alone. The Cassini probe, carrying the Huygens lander on its way to a rendezvous with Saturn's moon Titan in mid-2004, was received by a school station in Germany (amateur callsign DL0SHF). Cassini was 1.17 billion km away, eight times as far as we are from the Sun. The signal from Cassini took 65 minutes to reach Earth from its position closing on Saturn. This will no doubt spark interest in the P5A plans by AMSAT-DL among the general amateur satellite and EME community. Details of P5A are available on the AMSAT-DL website. Radio amateurs will, after all, have the chance to be involved in a mission to Mars. Not long ago this would have been fantasy. Congratulations to all involved. We live in interesting times.

## A potentially worrying development

How would we satellite enthusiasts fare if 2-line Keplerian elements were not freely available? I remember when there were no such thing as TLEs. We had to make do with observed AOS/LOS times, calculated EQXs (equator crossings) and mechanical aids like the "Oscar-Locator", a plastic map centred device with a movable cursor. It didn't matter then because no one had a computer, much less automatic antenna tracking.

TLEs however would certainly be missed today. The automatic entry of TLEs has been built in to every satellite tracking program worth its salt. Auto-Doppler correction and auto-tracking antennas are also used by many people and both these operations rely on fresh, accurate "keps". This worrying situation was brought up on the BB early in the New Year. It appears that the US Air Force (USAF) has for some time been trying to take over responsibility for dissemination of TLEs from NASA. The reasons may be rooted in US politics but the effect would be felt right throughout the "amateur" satellite-aware community. Military organisations are by nature reluctant to let out information except on an absolute 'need-to-know' basis. As amateurs we could well be deemed as 'not-needing-to-know'. Let's all hope that the worst case scenario doesn't prevail.

# Six-monthly summary of operational amateur radio satellites

## AO-40 AMSAT Oscar 40

**Uplink:** V-band 145.840 - 145.990 MHz CW/LSB
U-band 435.550 - 435.800 MHz CW/LSB
L1-band 1269.250 - 1269.500 MHz CW/LSB
L2-band 1268.325 - 1268.575 MHz CW/LSB
S1-band 2400.350 - 2400.600 MHz CW/LSB
**Downlink**: S2-band 2401.225 -2401.475 MHz CW/USB
K-band 24,048.010 - 24,048.060 MHz CW/USB
**Beacon:** 2401.323, 24,048.035
**Status:** ACTIVE!

For the current transponder-operating schedule visit:
http://www.amsat-dl.org/journal/adlj-p3d.htm

## ARISS - International Space Station

**Region 3 voice uplink:** 144.490 MHz FM
**Worldwide packet uplink:** 145.990 MHz FM
**Worldwide downlink:** 145.800 MHz FM
**Status:** Operational.
**Digipeater:** Active

The current Expedition 8 crew is:
Commander Mike Foale, KB5UAC
Flight Engineer Alexander Kaleri, U8MIR

Astronaut Mike Foale fired up the new Phase 2 Amateur Radio on the International Space Station (ARISS) equipment December 21 2003 to make a number of 2-meter contacts with amateurs around the world. He completed QSOs with amateurs in Australia, Europe and North America. ARISS International Chair Frank Bauer, KA3HDO, said official permission to use the new gear came December 17. The RS0ISS packet system also is back in operation. Activation of the new gear means a power boost from 5 W to 25 W for the NA1SS downlink signal. It also means the ISS now has two functional ham stations. Additional Phase 2 equipment planned to go into space very soon is to include a slow-scan television (SSTV) system and a Yaesu T-100 HF/VHF/UHF transceiver. U.S. callsign: NA1SS, Russian callsigns: RS0ISS, RZ3DZR, TNC callsign: RS0ISS-1.

## AO-7 AMSAT Oscar 7

Return to active status: June 21,2002
**Uplink:** 145.850 to 145.950 MHz CW/USB Mode A
432.125 to 432.175 MHz CW/LSB Mode B
**Downlink:** 29.400 to 29.500 MHz CW/USB Mode A
145.975 to 145.925 MHz CW/USB Mode B
**Beacon:** 29.502 MHz, 145.972 MHz, 435.1 MHz, 2304.1 MHz
**Status:** Semi-operational in sunlight.

For more AO-7 info: http://www.amsat.org/amsat/sats/n7hpr/ao7.html

## RS-15 Radio Sport RS-15

**Uplink:** 145.858 to 145.898 MHz CW/USB
**Downlink:** 29.354 to 29.394 MHz CW/USB
**Beacon:** 29.352 MHz (intermittent)
**Status:** Semi-operational, mode-A, (2-metre uplink, 10-metre downlink).

## FO-20 JAS-1b

**Uplink:** 145.90 to 146.00 MHz CW/LSB
**Downlink:** 435.80 to 435.90 MHz CW/USB
**Beacon:** 435.795
**Status:** Semi-Operational. FO-20 is in mode JA continuously.

## FO-29 JAS-2

Voice/CW Mode JA
**Uplink:** 145.90 to 146.00 MHz CW/LSB
**Downlink:** 435.80 to 435.90 MHz CW/USB
**Beacon:** 435.795 MHz

## Digital Mode JD

**Uplink:** 145.850 145.870 145.910 MHz FM
**Downlink:** 435.910 MHz 1200-baud BPSK or 9600-baud FSK
**Callsign:** 8J1JCS
**Digitalker:** 435.910 MHz
**Status:** Operational Mode JA (at the time of writing).

## SO-41 SaudiSat-1A

**Uplink:** 145.850 MHz
**Downlink:** 436.775 MHz
**Broadcast Callsign:** SASAT1-11
**BBS:** SASAT1-12
**Status:** Operational

Further information is available at:
http://www.amsat.org/amsat/sats/n7hpr/so41.html

## SO-50 SaudiSat-1C

**Uplink:** 145.850 MHz (67.0 Hz PL tone)
**Downlink:** 436.795 MHz
**Status:** Operational.

SO-50 carries several experiments, including a mode J FM amateur repeater experiment operating on 145.850 MHz uplink and 436.800 MHz downlink. The repeater is available to amateurs worldwide as power permits, using a 67.0 Hertz tone on the uplink, for on-demand activation. This satellite is being activated on passes over VK but activity is very light.

## UO-11 Oscar-11

**Downlink:** 145.826 MHz FM (1200-baud AFSK)
**Mode-S Beacon:** 2401.500 MHz
**Status:** Semi-operational.

UO-11 is still battling on and is useful for checking 2.4GHz receiving gear and of course is of major interest to telemetry buffs.

## UO-22 UOSat

**Uplink:** 145.900 FM 9600-baud FSK
**Downlink:** 435.120 MHz FM
**Broadcast Callsign:** UOSAT5-11
**BBS:** UOSAT5-12
**Status:** Operational. But only reliable in sunlight. Check for latest information on the following URL: http://www.sstl.co.uk/

## NO-44 PCSat

Still struggling along, PCsat has been on borrowed time for many months now and may not survive the next eclipse season.

**Uplink/downlink:** 145.827 MHz 1200 baud AX.25 AFSK via W3ADO-1
**Status:** Semi-Operational.

PCSat is a 1200-baud APRS digipeater designed for use by stations using hand-held or mobile transceivers. Downlinks feed a central web site at
http://pcsat.aprs.org

The APRS-equipped PCSat was built by midshipmen from the U.S. Naval Academy under the guidance of Bob Bruninga, WB4APR.

For more information, visit the PCSat web site at: http://web.usna.navy.mil/~bruninga/pcsat.html

## NO-45 Sapphire

**Downlink:** 437.095 MHz 1200 baud AX-25 AFSK
**Uplink**: 145.945 MHz UI Digipeater
**Digi Callsign:** KE6QMD
**Status:** Operational.

It will be authorized for UI digipeating very soon. Student-built Sapphire was launched through the U.S. Naval Academy Satellite program. Its primary missions are sensor experiments, a camera, and voice synthesizer. For more information, visit the Sapphire web site at:
http://students.cec.wustl.edu/~sapphire/sapphire_overview.html

## MO-46 TiungSat-1

**Uplink:** 145.850 or 145.925 MHz 9600-baud FSK
**Downlink:** 437.325 MHz
**Broadcast callsign:** MYSAT3-11
**BBS:** MYSAT3-12
**Status:** Operational at 38k4-baud FSK.

TiungSat-1 is Malaysia's first micro-satellite and in addition to commercial land and weather imaging payloads it offers downloadable picture files which can be decoded and displayed with Colin VK5HI's program CCD Display2000.

**ar**

# Spotlight on SWLing

by Robin L. Harwood VK7RH

**In the closing days of December, several International Broadcasters left shortwave, either for the Internet or permanently closing their shortwave senders. The Americans, via the International Broadcasting Bureau, ceased programming in several European languages and dialects, preferring instead to concentrate on programming in Arabic, Farsi and Indonesian.**

They also permanently closed the Holzkirchen senders in Bavaria and the site is to be converted into a golf course. There was a push in the US Congress for the retention of the European languages but the Bush Administration wants to concentrate in supporting the ongoing War on terrorism. That is why Arabic, Farsi and Indonesian are now priority languages.

Denmark and Norway also disappeared from HF on 31st of December, due to budgetary cuts. Both are going to increasingly rely on Internet feeds plus distribution of programs compiled on to DVD for the exclusive use of expatriates. The Voice of Malta in Valetta also made a hurried exit from shortwave. This station was a joint venture between Libya and the Maltese but the Libyans pulled out unexpectedly with negotiations underway for overdue payments from the Libyans. It is unclear at this stage whether the Maltese can find another joint venture partner to continue shortwave broadcasts.

That station in Costa Rica, located at the campus of the United Nations University of Peace, Radio for Peace International (RFPI), did indeed close down after being evicted. They did manage to get their equipment out and have found a place within Costa Rica to store it, announcing that they were hoping to re-establish RFPI. However they do face several large hurdles, including getting a license from the authorities plus obtaining ongoing finance. Apparently whilst on United Nations territory they did not feel that they had to apply for a license from Costa Rica but it is different now since their eviction. It does look likely that it may be some time before RFPI reappears, especially if their financial base dwindles even further. It has also been suggested that RFPI should consider hiring airtime from one of the many commercial shortwave stations with the U.S.

Iran also was contemplating leaving shortwave for the Internet, and at the beginning of Ramadan, indeed did reduce their programming but they asked their listeners whether they would prefer to use the Internet and after receiving their feedback, decided to quickly reintroduce their shortwave streams. I did report last month about the "Voice of Justice" which sounded like a clandestine station in Teheran, but it was identical to the established Voice of the Islamic Republic of Iran. Apparently English programs directed to North America are identified as the "Voice of Justice from Teheran". You can hear both programming streams from 1030 on 15550 but be aware that the VOJ stream can unexpectedly go silent. I believe that the VOJ stream is for broadcast later in the day.

Ireland also exited suddenly on 31st of December from shortwave. They have opted for delivery via the Internet and for satellite delivery via WorldSpace. The latter is not available in the Americas or Australia and they had a plan to offer "free" satellite radios for Irish expatriates in Africa. WorldSpace also announced they were going to a subscription-based format thus defeating the purpose, in my opinion, of a free to air platform.

With this exodus of the major international broadcasters from shortwave, an opportunity now exists for signals and stations to be heard, after being buried under the major stations. Some Brazilian domestic shortwave relays are now being observed on the 9 and 11 MHz allocations at 0900Z, corresponding to their local sunrise. I also believe that they can also be heard at our local sunrise around 1900.

On 27th December I came across a station on 6925 at 1057 UTC. It was on USB and was playing Rock music by the Rolling Stones. A female identified the station as "Moonshine Radio" in a Dixie accent. At 1110 the signal level started to drop and a male came on and the music also seemed to change format. My information is that they were two separate stations, one following the other. These stations are presumably in the USA and are titled hobby pirates and suddenly appear around New Year's Eve and occasionally during holiday weekends.

A word of warning: make backups of your vital information especially email addresses and loggings. My computer was completely disabled on New Year's Eve by a hidden virus. It came in through an online upgrade of my firewall and destroyed several registry entries plus my address book and some data. It took several frustrating days to get my computer running and I am still discovering lost data.

Well that is all for now. Keep monitoring and all the best for 2004.

**Robin L. Harwood VK7RH**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# Hamads *classifieds* FREE

## WANTED ACT

• **Service Manual or circuit diagram for Marconi Type TF 1066B/6 F.M. Signal Generator.** Peter VK1CPK QTHR Phone 02 6231 1790 fax 02 6296 5712 pkloppen@austarmetro.com.au

## FOR SALE NSW

• **Motorola R2200B service monitor** in excellent condition s/n 606CK0017, $3000 negotiable. Ray Wells VK2TV Phone 0417 428 220.

• **KM 160W VHF linear amp** $195. **Ampere 120W UHF linear amp** $315, incl manuals. **Kuranishi Thru-line 50/144/450 wattmeters**, two units, each $100. **144 MHz 7 el** homebrew yagi ant $150. Two **homebrew antenna tuners** PI network rotary inductors, each $150. **Microwave modules** 144/28 in/out converter $70. Art VK2AS, QTHR, Phone 02 9416 7784.

• **Power supply - 240V in, 14V, 43A out**, variable voltages, over-volts protect, over-current limit. Proper Japanese Industrial supply, $75 with information plus circuit. Will post anywhere in VK (5kg). Bob VK2CAN, QTHR, Phone 02 9416 3727.

• **Kenwood TS-930S w/ATU**, $850. **Emtron Tuner EAT-300**, $150. **Codan 7727** 10 channel/3 fitted, $150. **Tono Communicator THETA-7000e** for CW, RTTY, all self contained, $100. VK2TSB, Phone 0414 671 875, rivers@1earth.net.

• **Selsyn motors**. Two available. Useful for home brew beam direction indicators, $20 each. Peter, VK2BEU, Phone 02 9872 3381.

• Rare 1960s bakelite **Blue Point XX20B KOB practice set**, incorporating light and buzzer. For offers email hermanw@smartchat.net.au

• **FT-ONE Deluxe HF tcvr** FM & RAM fitted, inbuilt power supply and workshop manual $600. **FT-726R VHF UHF tcvr** all mode sat board fitted, **DTMF mike** $600. **FL-2100Z** amp with spare valves $600. DX-160 HF receiver with frequency meter connection $100. All in good condition with ops manuals. Contact Tim, VK2ZR, email: bartho@northnet.com.au

• **Complete beam, rotator and tower, Chirnside 10/15/20 m Yagi 502SAX Emotator rotator**, together with freestanding wind-up tilt-over tower, approx 12 m including two winches, all fully operational plus engineering drawings and manuals for all items. Offers to Ian VK2MW QTHR 02 9144 4985

## WANTED NSW

• **Spectrum analyser, plug-in HP-8557 or 8558**. VK2EDD, Phone 02 4982 9847.

• **Vibroplex bug key**. Email hermanw@smartchat.net.au

## FOR SALE VIC

• **Spider quad hub** IMTR alum welded extension 8 solid f/glass spreaders to match $200 VK3YJ, QTHR, Phone 03 9315 9387.

• **Laser printer Lexmark Optra**.ptx with software, manual, near new, had very little use. Would suit commercial use. $400. Ring Charlie, VK3DCS, QTHR, Phone 03 5331 7425, email charlie@coopcom.com.au.

• **Yaesu FT-890** all mode transceiver. This radio is in excellent condition, only one owner, s/n is 3L220492. ATU fitted, manual, hand mike, DC Cable, original packaging. This radio is in stock standard condition. No modifications have been attempted! I'm asking $1250. Clint Jeffrey, VK3CSJ, Phone AH 03 9792 4500, csjeffry@ozemail.com.au

• **Icom IC-706 MK IIG with UT-102** voice synthesizer unit. Excellent condition. Manual and original packing all available. $1400 Julian, VK3EJR, Phone 0418 578 214 or 03 97512253 Email: julianrose@connektron.com.au

## WANTED VIC

• **Fukuyama FDK multi 2000** 2 metre multi mode tcvr. VK3EGG, Phone 03 9819 9065.

• **Battery container** to fit **Standard** dualband hand-held model C500, either dry cell or Ni-cad type acceptable. If latter, Ni-cad condx unimportant. VK3DBD, QTHR Yackandandah. Email vk3dbd@rm.quik.com.au, or Phone 02 6027 0570.

• **Kenwood R-820 receiver** in top condition, also SP-820 ext. speaker. Damien, VK3RX, Phone 03 5427 3121, Email vk3rx@amsat.org

## FOR SALE QLD

• **Yaesu FT-101E, FT-101B, FV-101 VFO, Kenwood TS-120S, EC. FC-757 auto-tuner. FC-707 tuner**, handbooks, mikes and cables, tubes and spare modules. Paul, VK4DJ, Phone 07 4775 7998, 0401 860 769.

• **Amateur radio transceiver, Yaesu FT-107**. Early model less memory, 2 WARC bands, CW filter, a/c power supply, hand mic, s/n 9M030140, with operator's and service manuals and extension service board. Also Yaesu FV-107, s/n 9M020327. $400 or your nearest offer. Details gladly. VK4BTW, QTHR, Phone 07 4638 3828,

## FOR SALE SA

• **Deceased Estate: Icom IC-725** transmitter, **Icom AH-3** auto tuner, **Icom SM-6** desk mic, **GME electrophone 35 amp power supply** (current model) $1610. Will not separate. All in excellent condition with very little use. Paul, VK5MAP, QTHR or Phone 08 8651 2398 after 7.00pm

• **Tower:** Three, seven inch triangular, 10ft sections + pole, to 39ft. Has tilt base. $100. Ready for trailer or transport. Phone 08 8323 9150. Email glenhardy@chariot.net.au

## WANTED SA

• **MC-60A Kenwood desk mic**, must be in excellent condition. Pages 75-80 inclusive for Kenwood TS-440S service manual, photocopies OK. Will pay costs. Paul, VK5MAP, QTHR, 08 8651 2398.

## FOR SALE TAS

• **Yaesu SP-5 ext speaker** as new, box etc, suit FT-1000, FT-920 etc, $150. **Icom IC-2720H service manual**, new $30. **Daiwa CNW-418 ATU** WARC 80-10 m 500 W meter $255. **BL-50A balun**, G.C. used, $25. Phone Allen, VK7AH, QTHR, Phone 03 6327 1171, 0419 755 124

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- Separate forms for For Sale and Wanted items. Please include name, address STD telephone number and WIA membership number if you do not use the flysheet.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
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- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), Forty word maximum, minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy typed or printed clearly please, and received by the deadlines shown on page 1 of each issue of Amateur Radio.

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*Many apologies for publishing an incorrect address last issue.*

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PO Box 1100
Sandringham VIC 3191

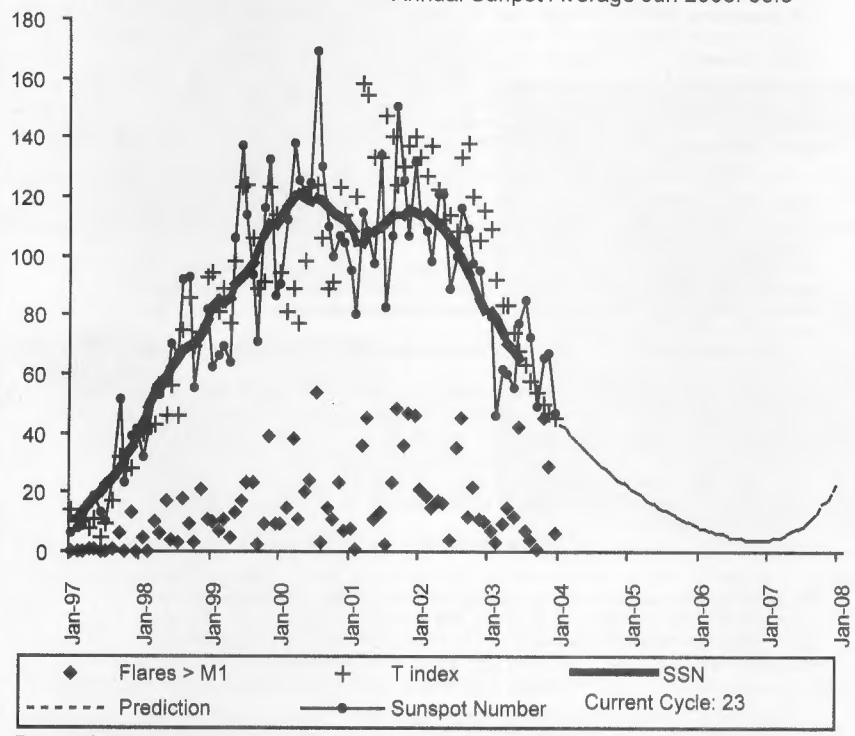
or call Arthur VK3VQ on **03 9598 4262** or Bill VK3BR on **03 9584 9512**,

or email to raotc@raotc.org.au for an application form.

## Sunspot Numbers

Monthy Sunspot Average Dec 2003: 47.0

Annual Sunpot Average Jun 2003: 65.3




Drawn from monthly data provided by the Ionospheric Prediction Service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# Division Directory

*The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.*

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

**Broadcast schedules** All frequencies MHz. All times are local.

**VK1 Division** Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

| | | |
|---|---|---|
| President | Alan Hawes | VK1WX |
| Secretary | Deane Walkington | VK1DW |
| Treasurer | Bob Howie | VK1HBH |

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.
VK1 Home Page *http://www.vk1.wia.ampr.org*
**Annual Membership Fees.** Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

**VK2 Division** New South Wales
109 Wigram St, Parramatta NSW
(PO Box 9432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644 (NSW only)
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

| | | |
|---|---|---|
| President | Brian Kelly | VK2WBK |
| Secretary | Owen Holmwood | VK2AEJ |
| Treasurer | Noel May | VK2YXM |

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
**Annual Membership Fees.** Full $83.00 Pensioner or student $66.00. Without *Amateur Radio* $50.00

**VK3 Division** Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

| | | |
|---|---|---|
| President | Jim Linton | VK3PC |
| Secretary | John Brown | VK3JJB |
| Treasurer | Jim Baxter | VK3DBQ |

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
**Annual Membership Fees.** Full $87.00 Pensioner or student $72.00. Without *Amateur Radio* $55.00

**VK4 Division** Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

| | | |
|---|---|---|
| President | Ewan McLeod | VK4ERM |
| Secretary | Bob Cumming | VK4YBN |
| Treasurer | David Gulley | VK4DCG |

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
**Annual Membership Fees.** Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $63.00

**VK5 Division** South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

| | | |
|---|---|---|
| President | Trevor Quick | VK5ATQ |
| Secretary | Peter Reichelt | VK5APR |
| Treasurer | Trevor Quick | VK5ATQ |

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
**Annual Membership Fees.** Full $91.00 Pensioner or student $76.00. Without *Amateur Radio* $61.00

**VK6 Division** Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

| | | |
|---|---|---|
| President | Neil Penfold | VK6NE |
| Secretary | Roy Watkins | VK6XV |
| Treasurer | Bruce Hedland-Thomas | VK6OO |

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
**Annual Membership Fees.** Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

**VK7 Division** Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@wia.org.au*

| | | |
|---|---|---|
| President | Phil Corby | VK7ZAX |
| Secretary | Dale Barnes | VK7DG |
| Treasurer | Dale Barnes | VK7DG |

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
**Annual Membership Fees.** Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

**VK8** Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

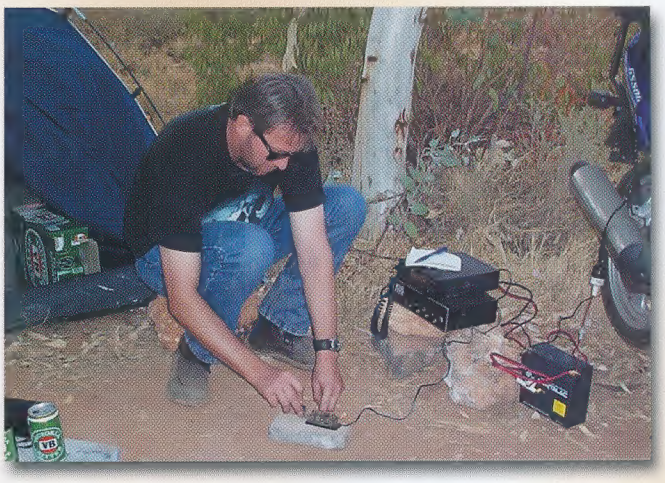
# Riding and talking

Steve Trebilco VK3NF

## Turning my motorbike into a mobile station

Bike and antenna – Salt lake north of Port Augusta

Craig, Brian, Dave VK3GDL and John VK5NJ



John VK5Nj sending morse – Curtin Springs

Steve VK3NF with bikes – Bottom of Uluru

see article on page 9

Helmet, transceiver and the antenna base – HF and 2 m

Steve VK3NF and John VK5NJ – Top of Uluru

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